Connectivity Solutions for Rockwell Automation

Fieldbus and Ethernet gateways - Embedded connectivity

Remote management - Remote PLC access - CAN Interfaces and gateways

Quick find

Our brands

Anybus®

Multi-network connectivity within fieldbus and industrial Ethernet

Anybus gateways and embedded interfaces connect automation devices such as drives, robot controllers and PLCs to any industrial network. This widens the market for device manufacturers and system integrators and substantially reduces costs for network connectivity.

IXXAT®

Communication solutions for machines, safety and automotive

IXXAT solutions are especially tailored for communication within machines, safety systems and the automotive sector. The IXXAT offering includes both products and services needed to solve advanced communication issues.

netbiter®

Remote Management of industrial equipment

Netbiter is a complete solution for remote management enabling supervision and control of field equipment from any location. The effects are substantially lower maintenance costs, less travelling, and better control.

HMS Connecting Devices™
Anybus® IXXAT® netbiter®

HMS Your partner for industrial communication

Office Locations:
Sweden HQ, USA, Germany, Japan, China, UK, France, Italy, India, Denmark.
Distributors in 50 countries worldwide.

HMS Industrial Networks is a leading global supplier of industrial communication technology.

HMS provides network enabling solutions for Rockwell Automation products such as drives, I/Os, power regulators and gateway solutions.

Encompass program

HMS participates as an Encompass™ Product Partner in the Rockwell Automation PartnerNetwork™. Through Encompass Product Partners, customers can quickly locate complementary products that best solve any application challenges. These products are critical components or connectivity solutions that extend and enhance Rockwell Automation installations.

Flexible solutions for your industrial market

The industrial design of Anybus gateways matches all industrial networking needs, regardless of industrial market.

Automotive, factory automation, building automation, food and beverage, mining, oil and gas, water treatment and marine are just some of the industrial segments where Anybus gateways are used in conjunction with many Rockwell Automation customer applications today.

Encompass - a rewarding partnership

"HMS has been an active Encompass member for more than 10 years. The Encompass program has been very beneficial to HMS, not just as a way to get direct sales from Rockwell Automation channels, but also as a way to follow Rockwell Automation through the ever-changing world of industrial automation. Being on the road together with Rockwell Automation and talking to our mutual customers have given us crucial feedback about how our products perform in the field and how we can improve them.

This has enabled us to develop a brand new generation of HMS products which have been tailor-made to help Rockwell Automation customers solve their connectivity needs, now and in the future."

Rockwell Automation
Encompass™ Product Partner
Global

Kevin Knake
Executive Vice President
HMS America

Anybus®

Gateways

Anybus® *Industrial networking made easy!™*

Solving connectivity problems on the factory floor

ANYBUS X-GATEWAY™

Network-to-network connectivity

1 Extend a production line

Extend an existing production segment by connecting new machines that communicate on other networks.

2 Upgrade to industrial Ethernet

The easy way to migrate from fieldbus to industrial Ethernet. Retrofit an old PLC system, and connect it to a newer system, keeping existing I/O modules and wiring infrastructure.

3 Make PLCs talk to each other

Connect Rockwell PLC systems to PLCs from Siemens, Rockwell, Schneider, Mitsubishi, Beckhoff, ABB etc.

4 Create network segments

Divide a network topology into logical segments. Create clear cuts between different parts of the plant, both logical and electrical.

5 Connect enterprise systems

Integrate factory floor data with enterprise level systems such as SCADA, SAP, OPC etc.

One gateway family — any network

RS232 RS422 RS485 ASCII J1939 DF1 FIPIO

ANYBUS COMMUNICATOR™

Device-to-network connectivity

6 Connect any industrial device

Anybus Communicator enables you to connect any device to fieldbus or industrial Ethernet networks.

If you are system integrator or plant owner, you can choose the best automation device for your needs, regardless of manufacturer.

If you are a machine builder or device manufacturer, you can make your machines compatible with any network — the fastest and easiest way to enter a new market.

Enter new segments

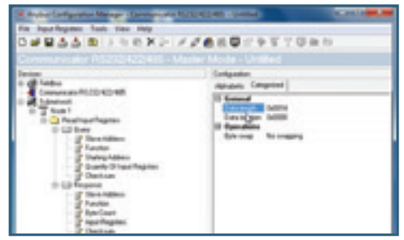
Anybus gateways are suitable for a wide range of applications within factories, building, power & energy and infrastructure. For example, you can make building automation devices such as temperature sensors, energy meters, gas gauges and water meters part of your industrial network. This gives you better control and helps you reduce energy consumption.

HMS Academy:
Solutions, trainings, how-to videos, case studies, webinars related to Anybus gateways on www.anybus.com/training.

Anybus Configuration Manager: Connect. Configure. Done!

No matter which gateway you choose, you configure the network connection in the easy-to-use Anybus Configuration Manager. Simply connect the gateway via USB or Ethernet, create the configuration and you're done!

Markus Bladh
Product Manager,
Gateways



Anybus Communicator RTU

Converting from Modbus RTU protocols to ControlNet, DeviceNet and EtherNet/IP

With the Anybus Communicator RTU you can connect a non-networked device to any major fieldbus or industrial Ethernet network. The Communicator handles the complete Modbus RTU serial protocol without the need for extensive PLC function blocks.

The Communicator RTU has a selectable serial RS-232/422/485 interface making it possible to connect one or multiple devices using just one Communicator. This compact gateway consumes very little space in a cabinet and is easily mounted on a standard DIN rail.

When to use

Integrates non-networked devices and machines with a serial RS-232/422/485 interface to a DeviceNet/ControlNet or EtherNet/IP PLC control system.

Configuration

As the most common serial Modbus RTU interface is used, HMS takes away the hassle of scripting and serial frame-building by using an easy 6-step visual configuration wizard that contains predefined Modbus RTU commands.

Proven and trusted

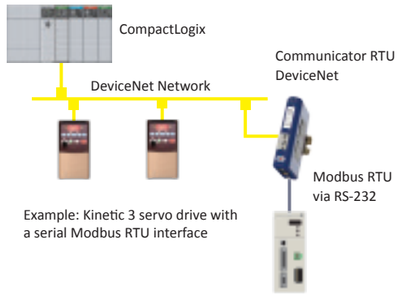
The Anybus Communicator has been safely connecting devices to Rockwell Automation networks and systems for over 10 years.

Its flexibility means that it is used in a wide variety of industries such as factory automation, mining, waste water management, Infrastructure Building and HVAC and many more.

With the Anybus Communicator, your devices are connected fast. Its unrivalled performance, flexibility and reliability gives you the peace of mind you need when solving your connectivity problems.

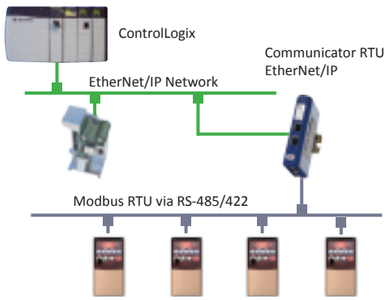
Niklas Selander
Product Manager - Anybus Gateways

APPLICATION EXAMPLE SINGLE-DROP



Example: Kinetic 3 servo drive with a serial Modbus RTU interface

APPLICATION EXAMPLE MULTI-DROP



Example: Connects up to 31 PF4 drives via RS-485

Features and benefits

- When converting the Modbus RTU protocol, the Communicator acts as Master on the serial network
- Predefined 6-step Modbus RTU configuration wizard
- Enables any automation device with a serial RS-232/422/485 Modbus RTU Slave interface to participate on a network
- No hardware or software changes are required for the connected automation device
- Compatible with all Allen Bradley and Guard PLCs
- Complete protocol conversion performed by the Communicator, no PLC function blocks required
- Save/Load function means a completed configuration can be reused for many other installations
- CE, $_{c}$UL$_{us}$ and HazLoc certifications
- Global free technical support and consultancy
- Configuration video available on www.anybus.com

Using the Rockwell Automation Integrated Architecture Builder (IAB), engineers can integrate the Communicator making it easy to include in your network system design.

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

ControlNet	**1** = 2*BNC Coax + RJ45 (NAP) **2** = 5 Mbit/s **3** = 450 byte IN/OUT **4** = Communications adapter, profile n. 12
DeviceNet	**1** = 5*5.08 PLUG **2** = 125-500 kbit/s **3** = 512 byte IN/OUT **4** = Communications adapter, profile n. 12
EtherNet/IP 2-port	**1** = 2*RJ45 **2** = 10/100 Mbit/s **3** = 512 IN/OUT **4** = EtherNet/IP group 2 and 3 server

Order information

Network:	PartNo:
ControlNet	AB7006
DeviceNet	AB7001
EtherNet/IP 2-port	AB7072

**See page 53 for mechanical and technical specifications*

Optional accessories

USB-RS232 configuration adapter
Part No: 019570

Anybus Communicator DF1

Converting from DF1 protocols to ControlNet, DeviceNet and EtherNet/IP

The Communicator DF1 is used to enable non-networked automation devices to participate on DeviceNet, ControlNet and EtherNet/IP.

With its selectable serial RS-232/422/485 interface, the Communicator converts the DF1 protocol and enables devices such as Rockwell Automation/Allen Bradley PLC-5 and SLC-500 among others, to participate on the network without the need for extensive PLC function blocks.

When to use

Integrates non-networked devices and machines with a serial RS-232/422/485 interface to a DeviceNet/ControlNet or EtherNet/IP PLC control system.

HMS takes away the hassle of scripting and serial frame building by using an easy visual configuration that allows for the easy generation of DF1 scan lists.

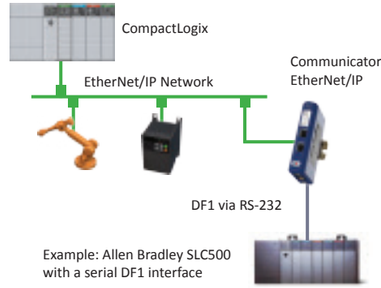
Tech tip

Using the Communicator to connect to serial devices eliminates the need for a serial option card and the need for complex function block programming.

Furthermore, as the Communicator is not restricted to the length of a serial cable, it can be installed almost anywhere within the installation.

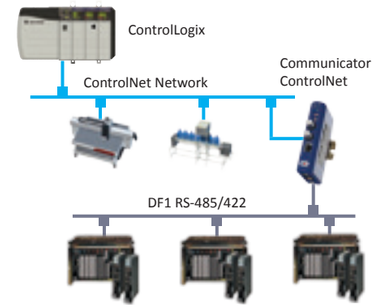
With its intelligent internal data mapping system, the Communicator enables even very slow devices to participate on the network without any performance restrictions.

APPLICATION EXAMPLE SINGLE-DROP



Example: Allen Bradley SLC500 with a serial DF1 interface

APPLICATION EXAMPLE MULTI-DROP



Example: Connecting PLC5s via RS-485

Features and benefits

- When converting the DF1 protocol the Communicator acts as a DF1 Half Duplex Master on the serial network
- Enables any automation device with a serial RS-232/422/485 DF1 interface to participate on a network
- No hardware or software changes are required for the connected automation device
- Compatible with all Allen Bradley and Guard PLCs
- Complete protocol conversion performed by the Communicator, no PLC function blocks required
- Save/Load function means a completed configuration can be reused for many other installations
- CE, $_{c}$UL$_{us}$ and HazLoc certifications
- Global free technical support and consultancy
- Configuration video available on www.anybus.com

Using the Rockwell Automation Integrated Architecture Builder (IAB), engineers can integrate the Communicator making it easy to include in your network system design.

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

ControlNet	**1** = 2*BNC Coax + RJ45 (NAP) **2** = 5 Mbit/s **3** = 450 byte IN/OUT **4** = Comm adapter, profile n. 12
DeviceNet	**1** = 5*5.08 PLUG **2** = 125-500 kbit/s **3** = 512 byte IN/OUT **4** = Communications adapter, profile n. 12
EtherNet/IP 2-port	**1** = 2*RJ45 **2** = 10/100 Mbit/s **3** = 512 IN/OUT **4** = EtherNet/IP group 2 and 3 server

Order information

Network:	PartNo:
ControlNet	AB7006
DeviceNet	AB7001
EtherNet/IP 2-port	AB7072

**See page 53 for mechanical and technical specifications*

Optional accessories

USB-RS232 configuration adapter
Part No: 019570

Anybus Communicator RS-232/422/485

Converting from RS-232/422/485 protocols to ControlNet, DeviceNet and EtherNet/IP

With the Anybus Communicator RS-232/422/485 you can connect your non-networked device to any major fieldbus or industrial Ethernet network. The Communicator handles the complete serial protocol without the need for extensive PLC function blocks.

It supports RS-232/422/485 making it possible to connect one or multiple devices using one Communicator. This compact gateway consumes very little space in a switching cabinet and is easily mounted on a standard DIN rail.

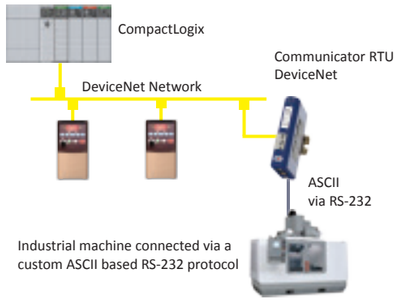
When to use

Integrate non-networked devices and machines using a configurable serial RS-232/422/485 interface to a DeviceNet/ControlNet or EtherNet/IP PLC control system.

Protocol configuration

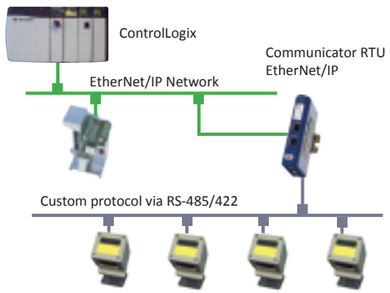
For industrial devices with a serial RS-232/422/485 interface, HMS makes it possible to configure almost any Produce/Consume, Request/Response or simple ASCII protocols with its flexible serial frame building method.

APPLICATION EXAMPLE SINGLE-DROP



Industrial machine connected via a custom ASCII based RS-232 protocol

APPLICATION EXAMPLE MULTI-DROP



Barcode scanners connected via RS-485 using a custom produce/consume protocol

- Build your own RS-232/422/485-based protocol in a graphical environment in just a few minutes
- Proven and trusted intelligent gateways providing unrivalled flexibility and functionality
- No hardware or software changes are required for the connected automation device
- Compatible with all PLCs from Rockwell Automation and with other manufacturers such as Siemens, Schneider, Mitsubishi etc
- Complete protocol conversion performed by the Communicator, no PLC function blocks required
- Save/Load function means a completed configuration can be reused for many other installations
- Free global technical support and consultancy
- CE, $_{c}$UL$_{us}$ and HazLoc certifications
- Global free technical support and consultancy
- Configuration video available on www.anybus.com

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

ControlNet	**1** = 2*BNC Coax + RJ45 (NAP) **2** = 5 Mbit/s **3** = 450 byte IN/OUT **4** = Communications adapter, profile n. 12
DeviceNet	**1** = 5*5.08 PLUG **2** = 125-500 kbit/s **3** = 512 byte IN/OUT **4** = Communications adapter, profile n. 12
EtherNet/IP 2-port	**1** =2* RJ45 **2** = 10/100 Mbit/s **3** = 512 IN/OUT **4** = EtherNet/IP group 2 and 3 server

Order information

Network:	PartNo:
ControlNet	AB7006
DeviceNet	AB7001
EtherNet/IP 2-port	AB7072

See page 53 for mechanical and technical specifications

Optional accessories

USB-RS232 configuration adapter
Part No: 019570

Did you know?

Using the Anybus Communicator together with the HMS M-Bus converter allows data from measuring devices onto DeviceNet, ControlNet or EtherNet/IP.

M-Bus (Meter-Bus) is a standard for remote reading of measuring devices. It is predominantly used in buildings, for example in electricity meters, gas meters, water meters or other types of consumption meters.

**M-Bus converter sold separately, visit www.anybus.com for more information*

Using the Rockwell Automation Integrated Architecture Builder (IAB), engineers can integrate the Communicator making it easy to include in your network system design.

Anybus Communicator CAN

Converting from CAN-based protocols to ControlNet, DeviceNet and EtherNet/IP

The Anybus Communicator CAN allows almost any CAN device supporting an 11-bit or 29-bit identifier to be easily integrated into a Rockwell Automation control system.

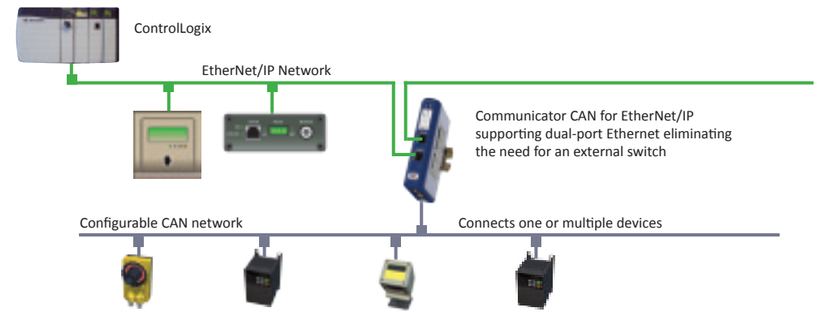
The Anybus Communicator CAN performs an intelligent conversion between a CAN-based protocol of an automation device and the chosen DeviceNet, ControlNet or EtherNet/IP network. The Communicator CAN is a compact gateway that consumes very little space in a switching cabinet and is easily mounted onto a standard DIN rail.

When to use

Generic CAN has traditionally been used with sensors, barcode readers and drives within the European car manufacturing industry.

Many of these devices have fieldbus support for PROFIBUS or CANopen. In addition they also have a generic CAN port. Through this port these devices can be integrated with a DeviceNet/ ControlNet or EtherNet/IP PLC control system.

APPLICATION EXAMPLE SINGLE-DROP



Protocol configuration

Configuring CAN-based protocols can be quite tricky. With the Anybus Configuration Manager CAN, HMS provides you with a flexible and easy-to-use CAN frame building environment with several built-in CAN functions.

The configuration manager allows for a mixture of both Query/ Response and/or Produce/ Consume protocols to be configured.

- CAN gateways that connect CAN devices to fieldbus/Ethernet networks
- Support for custom CAN 1.0, 2.0A and 2.0B protocols
- Handles mixed Produce/Consume and Request/Response protocols and transactions
- No hardware or software changes needed to your devices
- No PLC code or function blocks required
- Compatible with all PLCs from Rockwell Automation and with other manufacturers such as Siemens, Schneider, Mitsubishi etc
- Versions with dual port switched Ethernet allows for daisy chaining and eliminates the need for external switches
- Anybus Configuration Manager included for easy visual CAN frame building
- CE, $_{c}$UL$_{us}$ ATEX and HazLoc certifications
- Configuration video available on www.anybus.com
- Global free technical support and consultancy

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

ControlNet	**1** = 2*BNC Coax + RJ45 (NAP) **2** = 5 Mbit/s **3** = 512 byte IN/OUT **4** = Comm adapter, profile n.12
DeviceNet	**1** = 5*5.08 PLUG **2** = 125-500 kbit/s **3** = 512 byte IN/OUT **4** = Communications adapter, profile n.12
EtherNet/IP	**1** = RJ45 **2** = 10/100 Mbit/s **3** = 507 byte IN/OUT **4** = EIP group 2+3, DLR support

Order information

Network:	Part No:
EtherNet/IP	AB7318
ControlNet	AB7314
DeviceNet	AB7313

See page 53 for mechanical and technical specifications

Optional accessories

USB-RS232 configuration adapter
Part No: 019570

Did you know?

With Anybus Communicator CAN it is possible to configure the CAN protocol SAE J1939. J1939 is often used in the marine industry.

Using the Rockwell Automation Integrated Architecture Builder (IAB), engineers can integrate the Communicator making it easy to include in your network system design.

Anybus X-gateway DeviceNet and EtherNet/IP Scanner to fieldbus and Ethernet

Connecting CIP devices to any other Fieldbus and Industrial Ethernet network and PLC system

These Anybus X-gateways are bridges between a non-CIP PLC system (Siemens, Schneider, Mitsubishi etc) and Rockwell Automation devices with a DeviceNet or EtherNet/IP interface.

The X-gateway copies cyclic I/O data in both directions enabling data exchange between networks. This ensures a consistent information flow throughout the entire plant.

When to use

Integrating Rockwell Automation devices (eg. drives) on DeviceNet or EtherNet/IP to another network and PLC system.

Utilizing the Scanner interface on the X-gateway means a Rockwell Automation PLC and RSNetworx is not required. This can be of benefit when retro-fitting an existing (non-CIP) installation with Rockwell Automation devices.

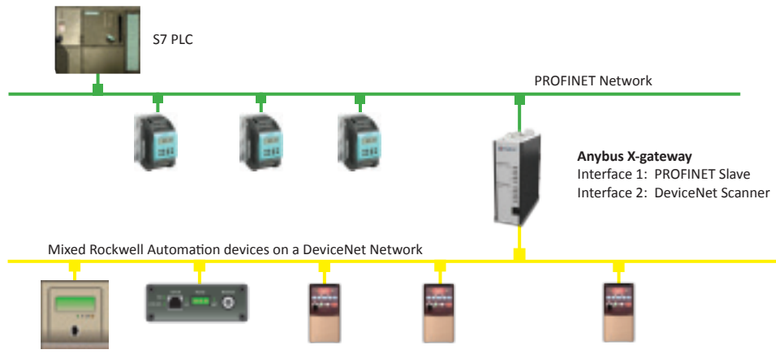
Configuration

EtherNet/IP Adapter setup via an on-board web interface and DeviceNet Adapter setup via the included NetTool-DN config tool.

Order information

DeviceNet Scanner:	**Part.No**
CANopen Slave	AB7816
CC-Link Slave	AB7819
EtherCAT Slave	AB7697
Modbus RTU Slave	AB7817
Modbus-TCP Slave	AB7630
PROFIBUS Slave	AB7663
PROFINET IO Device	AB7647

EtherNet/IP Scanner:	**Part.No**
CANopen Slave	AB7677
CC-Link Slave	AB7680
EtherCAT Slave	AB7699
Modbus RTU Slave	AB7678
Modbus-TCP Slave	AB7669
PROFIBUS Slave	AB7671
PROFINET IO Device	AB7670



The X-gateway consists of two communication interfaces. The first interface provides Scanner functionality controlling up to 63 DeviceNet and EtherNet/IP adapters. The second Adapter/Slave interface can support any one of 12 other industrial networks.

- An easy way to transmit I/O data between a ControlNet, DeviceNet or EtherNet/IP network and all other major fieldbus and Ethernet networks
- Allows for cyclic I/O data exchange between networks
- Fast I/O data transfer with average timing between networks: 10-15 ms
- Additional parameter data supported (depending on network combination)
- Optional control and status information added to the I/O data for diagnostic purposes
- Included Anybus OPC server for extended functionality available with the EtherNet/IP version
- Included IT functions such as integrated web server, e-mail and FTP client
- Robust stand-alone metal housing with CE and $_{c}UL_{us}$ certifications

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other
5 = Amount of slaves / adapters

DeviceNet	**1** = 5*5.08 PLUG **2** = 125-500 kbit/s **3** = 512 byte IN/OUT **4** = ODVA 2.0 Scanner Group 2 Client/Server / UCMM support **5** = 63 adapter/slaves
EtherNet/IP	**1** = RJ45 **2** = 10/100 Mbit/s **3** = 512 byte IN/OUT **4** = EIP group 2+3, DLR support, IT functions **5** = 63 adapter/slaves

**See page 53 for mechanical and technical specifications*

Using the Rockwell Automation Integrated Architecture Builder (IAB), engineers can integrate the X-gateway making it easy to include in your network system design.

Anybus X-gateway CANopen Master to ControlNet, DeviceNet and EtherNet/IP

Connecting a CANopen network to a Rockwell Automation PLC system

The X-gateway CANopen series provides CANopen Master (Manager) /Slave connectivity to a Rockwell Automation PLC system with ControlNet, DeviceNet or EtherNet/IP.

The fact that Anybus X-gateways combine high reliability and flexibility make them indispensible connectivity tools for system integrators and plant operators within all industries.

When to use

Integrates Rockwell Automation devices to other PLC systems with a CANopen network.

Coupling/Decoupling different parts of a machine or extending the physical network distance within an installation.

Configuration

The X-gateway CANopen can be configured with the free and included CANopen Configuration Manager.

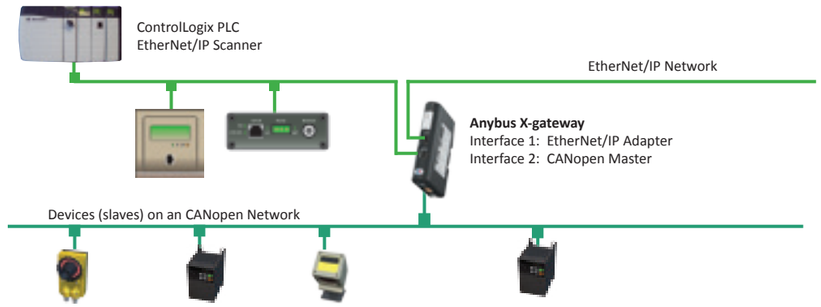
Order information

Network:	**Part No:**
ControlNet	AB7303
DeviceNet	AB7302
EtherNet/IP 2-port	AB7306

Optional accessories

CANopen-to-USB configuration adapter. Part.No: 021370

**CAN Configuration Manager available for download at www.anybus.com*



The X-gateway consists of two communication interfaces. The first interface provides CANopen Master or Slave functionality. The second interface provides ControlNet, DeviceNet or EtherNet/IP Adapter functionality.

- Allows transparent transfer of I/O data between CANopen and another network
- CANopen master functionality allows connection of up to 126 CANopen Slaves
- Dual port Ethernet with switch functionality for EtherNet/IP with DLR support
- Ethernet versions with IT functions such as dynamic web server, supporting downloadable customer specific web pages
- CANopen NMT Master and Configuration Manager functionality
- DIN-rail mountable slimline plastic housing with HazLoc, ATEX and CE certifications

Using the Rockwell Automation Integrated Architecture Builder (IAB), engineers can integrate the X-gateway making it easy to include in your network system design.

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other
5 = Amount of slaves / adapters

CANopen Master	**1** = DSUB9M **2** = Up to 1 Mbit/s, **3** = 128 PDOs Receive/128 PDOs Transmit, 510 bytes IN/OUT **4** = CANopen specification DS301 v4.0.2 **5** = 126 slaves

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

ControlNet	**1** = 2*BNC Coax + RJ45 (NAP) **2** = 5 Mbit/s **3** = 512 byte IN/OUT **4** = Comm adapter, profile n.12
DeviceNet	**1** = 5*5.08 PLUG **2** = 125-500 kbit/s **3** = 512 byte IN/OUT **4** = Communications adapter, profile n.12
EtherNet/IP	**1** = 2x RJ45 **2** = 10/100 Mbit/s **3** = 507 byte IN/OUT **4** = EIP group 2+3, DLR support

**See page 53 for mechanical and technical specifications*

Anybus X-gateway Modbus-TCP Master to ControlNet, DeviceNet and EtherNet/IP

Connecting a Modbus-TCP network to a Rockwell Automation PLC system

The Anybus X-gateway Modbus-TCP series are bridges between a Modbus-TCP network and a Rockwell Automation PLC system with ControlNet, DeviceNet or EtherNet/IP.

The X-gateway copies cyclic I/O data in both directions enabling data exchange between networks. This ensures a consistent information flow throughout the entire plant.

When to use

Integrating Rockwell Automation devices and PLC systems to Modbus-TCP installations.

Coupling/Decoupling different parts of a machine or extending the physical network distance within an installation.

Configuration

Configuration is made over Ethernet via a built-in web page. It is used to configure Ethernet TCP/IP settings, Modbus-TCP client configuration and I/O data register mapping between Modbus-TCP and the chosen CIP network.

Tech tip

The X-gateway is equipped with an SD memory card slot for Easy Replacement™, configuration copy and backup.

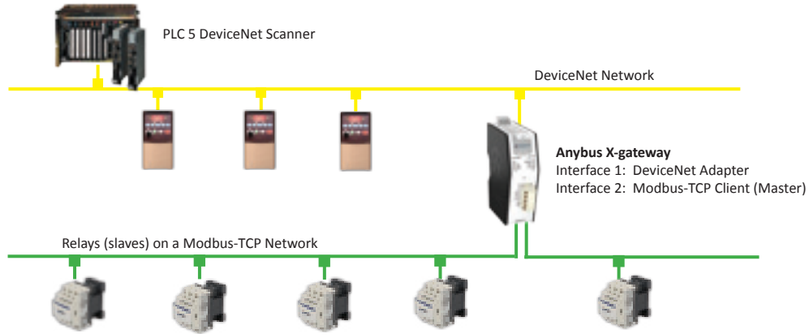
If required, field replacement can be made by simply moving the memory card — without connecting a PC and with no specialist help.

Order information

Network:	Part No:
ControlNet	AB9003
DeviceNet	AB9002
EtherNet/IP 2-port	AB9006

Accessories

SD memory card, industrial grade
Part No: 021530



The X-gateway consists of two communication interfaces.
The first interface provides Modbus-TCP Client (Master) functionality controlling up to 126 Modbus-TCP Slaves. The second interface provides ControlNet, DeviceNet or EtherNet/IP Adapter functionality.

- Allows for fast transparent transfer of I/O data between two networks
- High performance and short throughput delay, approximately 5 ms
- SD memory card slot for backup, configuration and Easy Replacement™
- Dual port switched Ethernet allows daisy chaining on the Modbus-TCP and EtherNet/IP network
- Robust design for optimized cabling, DIN-rail or wall mount options
- Easy web based configuration tool. No programming or scripting required
- Live list which provides information to the uplink PLC about the status of connected Modbus-TCP server devices and configured transactions

Using the Rockwell Automation Integrated Architecture Builder (IAB), engineers can integrate the X-gateway making it easy to include in your network system design.

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other
5 = Amount of slaves / adapters

Modbus-TCP	**1** = 2*RJ45 **2** = 10/100 Mbit/s **3** = 256 bytes IN/OUT **4** = Modbus-TCP functions: 3,4,6,16,23 **5** = 126 slaves

Network specific features

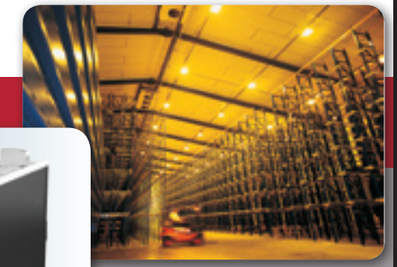
1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

ControlNet	**1** = 2*BNC Coax + RJ45 (NAP) **2** = 5 Mbit/s **3** = 256 byte IN/OUT **4** = Communications adapter, profile n.12
DeviceNet	**1** = 5*5.08 PLUG **2** = 125-500 kbit/s **3** = 256 byte IN/OUT **4** = Bit-strobed, Change-of-state or Cyclic I/O
EtherNet/IP	**1** = 2*RJ45 **2** = 10/100 Mbit/s **3** = 256 byte IN/OUT **4** = DLR support

*See page 53 for mechanical and technical specifications

*Wall mounted version for increased vibration protection is also available. Contact HMS.

Anybus X-gateway PROFIBUS Master to ControlNet, DeviceNet and EtherNet/IP



Connecting a PROFIBUS network to a Rockwell Automation PLC system

This Anybus X-gateway is a bridge between a PROFIBUS network and a Rockwell Automation PLC system with ControlNet, DeviceNet or EtherNet/IP.

The X-gateway copies cyclic I/O data in both directions enabling data exchange between networks. This ensures a consistent information flow throughout the entire plant.

When to use

Integrating Rockwell Automation devices and PLC systems to PROFIBUS installations.

Migrate from PROFIBUS to Industrial Ethernet (EtherNet/IP).

Coupling/Decoupling different parts of a machine or extending the physical network distance within an installation.

Configuration

PROFIBUS configuration is defined with NetTool-PB, a Windows based configuration software for PROFIBUS. HMS NetTool-PB is included free of charge with all CIP versions using a PROFIBUS Master.

Tech tip

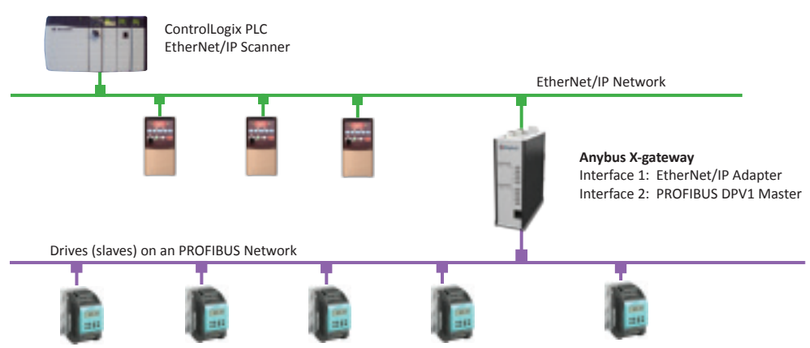
The X-gateway is equipped with a powerful PROFIBUS DP-V1 Master interface. No additional PROFIBUS PLC or software is required.

Order information

Network:	Part No:
ControlNet	AB7803
DeviceNet	AB7802
EtherNet/IP	AB7800

Optional accessories

USB-RS232 configuration adapter
Part No: 019570



The X-gateway consists of two communication interfaces. The first interface provides PROFIBUS DP-V1 Master functionality controlling up to 125 PROFIBUS Slaves. The second interface, ControlNet, DeviceNet or EtherNet/IP Adapter functionality.

- An easy way to transmit I/O data between a PROFIBUS network and ControlNet, DeviceNet or EtherNet/IP
- Allows for cyclic I/O data exchange between networks
- Fast I/O data transfer with average timing between networks: 10-15 ms
- Additional parameter data supported (depending on network combination)
- Optional control and status information added to the I/O data for diagnostic purposes
- Included Anybus OPC server for extended functionality available with the EtherNet/IP version
- Robust stand-alone metal housing with CE and $_{c}UL_{us}$ certifications

Using the Rockwell Automation Integrated Architecture Builder (IAB), engineers can integrate the X-gateway making it easy to include in your network system design.

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other
5 = Amount of slaves / adapters

PROFIBUS	**1** = 2*DSUB9 **2** = 12 Mbit/s, **3** = 512 bytes IN/OUT **4** = DP-V1 Master, **5** = 125 slaves

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

ControlNet	**1** = 2*BNC Coax + RJ45 (NAP) **2** = 5 Mbit/s **3** = 450 byte IN/OUT **4** = Comm adapter, profile n.12
DeviceNet	**1** = 5*5.08 PLUG **2** = 125-500 kbit/s **3** = 512 byte IN/OUT **4** = Bit-strobed, Change-of-state or Cyclic I/O
EtherNet/IP	**1** = RJ45 **2** = 10/100 Mbit/s **3** = 512 byte IN/OUT **4** = EIP group 2, DLR support

*See page 53 for mechanical and technical specifications

Anybus X-gateway CANopen Slave to ControlNet, DeviceNet and EtherNet/IP

Connecting a CANopen network to a Rockwell Automation PLC system

This Anybus X-gateway is a bridge between a CANopen network and a Rockwell Automation PLC system with ControlNet, DeviceNet or EtherNet/IP.

The X-gateway copies cyclic I/O data in both directions enabling data exchange between networks. This ensures a consistent information flow throughout the entire plant.

When to use

Integrating Rockwell Automation devices and PLC systems to CANopen installations.

Configuration

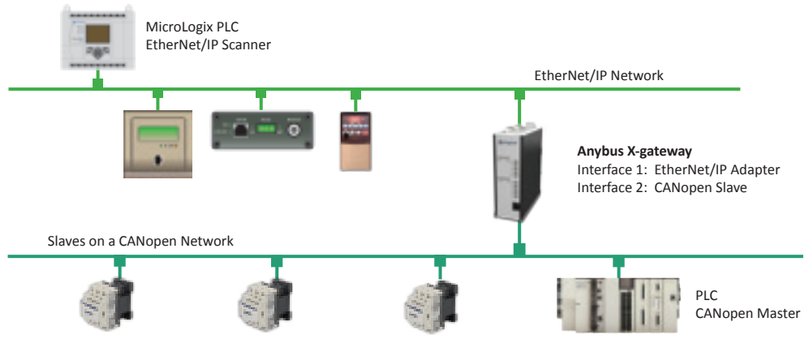
The included Anybus Configuration Manager X-gateway allows you to define the I/O data sizes on each network side and to define the data mapping and separation between cyclic I/O data and parameter data.

Order information

Network:	Part No:
ControlNet	AB7868
DeviceNet	AB7859
EtherNet/IP	AB7838

Optional accessories

USB-RS232 configuration adapter
Part No: 019570



The X-gateway consists of two communication interfaces. The first interface provides CANopen Slave functionality. The second interface provides ControlNet, DeviceNet or EtherNet/IP Adapter functionality.

- An easy way to transmit I/O data between a CANopen network and ControlNet, DeviceNet or EtherNet/IP
- Allows for cyclic I/O data exchange between networks
- Fast I/O data transfer with average timing between networks: 10-15 ms
- CANopen PDO and SDO data objects supported
- Optional control and status information added to the I/O data for diagnostic purposes
- Included Anybus OPC server for extended functionality available with the EtherNet/IP version
- EtherNet/IP version with IT functions such as dynamic web server, supporting downloadable customer specific web pages
- Robust stand-alone metal housing with CE and $_{c}UL_{us}$ certifications

Using the Rockwell Automation Integrated Architecture Builder (IAB), engineers can integrate the X-gateway making it easy to include in your network system design.

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

CANopen	**1** = DSUB9M **2** = 10 Kbits to 1 Mbit/s, **3** = 512 bytes IN/OUT **4** = Supports profile CIA DS301 V4.02

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

ControlNet	**1** = 2*BNC Coax + RJ45 (NAP) **2** = 5 Mbit/s **3** = 450 byte IN/OUT **4** = Communications adapter, profile n.12
DeviceNet	**1** = 5*5.08 PLUG **2** = 125-500 kbit/s **3** = 512 byte IN/OUT **4** = Bit-strobed, Change-of-state or Cyclic I/O
EtherNet/IP	**1** = RJ45 **2** = 10/100 Mbit/s **3** = 512 byte IN/OUT **4** = EIP group 2, DLR support

See page 53 for mechanical and technical specifications

Anybus X-gateway CC-Link Slave to ControlNet, DeviceNet and EtherNet/IP

Connecting a CC-Link network to a Rockwell Automation PLC system

This Anybus X-gateway is a bridge between a CC-Link network and a Rockwell Automation PLC system with ControlNet, DeviceNet or EtherNet/IP.

The X-gateway copies cyclic I/O data in both directions enabling data exchange between networks. This ensures a consistent information flow throughout the entire plant.

When to use

Integrating Rockwell Automation devices and PLC systems to CC-Link installations.

Configuration

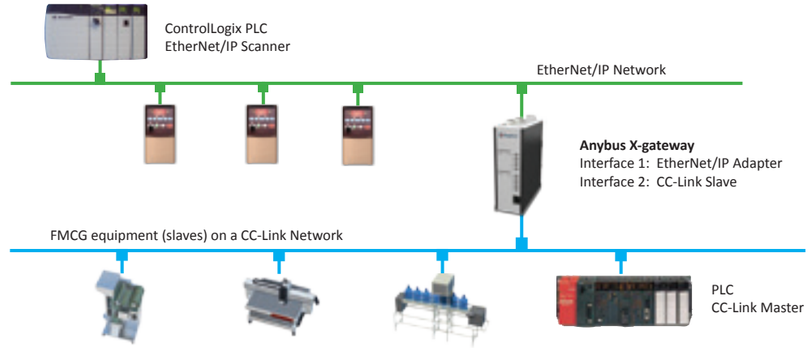
The included Anybus Configuration Manager X-gateway allows you to define the I/O data sizes on each network side and to define the data mapping and separation between cyclic I/O data and parameter data.

Order information

Network:	Part No:
ControlNet	AB7871
DeviceNet	AB7862
EtherNet/IP	AB7841

Optional accessories

USB-RS232 configuration adapter
Part No: 019570



The X-gateway consists of two communication interfaces. The first interface provides CC-Link Slave functionality. The second interface provides ControlNet, DeviceNet or EtherNet/IP Adapter functionality.

- An easy way to transmit I/O data between a CC-Link network and ControlNet, DeviceNet or EtherNet/IP
- Allows for cyclic I/O data exchange between networks
- Fast I/O data transfer with average timing between networks: 10-15 ms
- Optional control and status information added to the I/O data for diagnostic purposes
- Uses the CC-Link PLC profile for data exchange
- Included Anybus OPC server for extended functionality available with the EtherNet/IP version
- EtherNet/IP version with IT functions such as dynamic web server, supporting downloadable customer specific web pages
- Robust stand-alone metal housing with CE and $_{c}UL_{us}$ certifications

Using the Rockwell Automation Integrated Architecture Builder (IAB), engineers can integrate the X-gateway making it easy to include in your network system design.

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

CC-Link	**1** = DSUB9 Female **2** = 156 kbps to 10 Mbit/s, **3** = Ver 1: 128 I/O points, 16 words IN/OUT **4** = Ver 2.0: 896 I/O points, 128 words IN/OUT

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

ControlNet	**1** = 2*BNC Coax + RJ45 (NAP) **2** = 5 Mbit/s **3** = 450 byte IN/OUT **4** = Communications adapter, profile n.12
DeviceNet	**1** = 5*5.08 PLUG **2** = 125-500 kbit/s **3** = 512 byte IN/OUT **4** = Bit-strobed, Change-of-state or Cyclic I/O
EtherNet/IP	**1** = RJ45 **2** = 10/100 Mbit/s **3** = 512 byte IN/OUT **4** = EIP group 2, DLR support

See page 53 for mechanical and technical specifications

Anybus X-gateway ControlNet Adapter to fieldbus and Industrial Ethernet

Connecting a ControlNet network to any other fieldbus or Industrial Ethernet network

This Anybus X-gateway is a bridge between a ControlNet network and any other network from another PLC vendor.

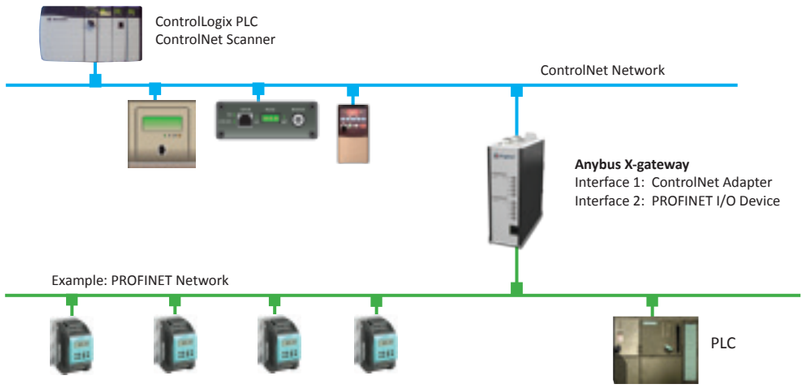
X-gateways are designed for use in industrial automation plants where many different networks are used. They copy cyclic I/O data in both directions enabling a consistent information flow throughout the entire plant.

When to use

Interconnecting PLC systems and networks from similar or different vendors.

Enabling Rockwell Automation devices with a ControlNet interface to participate on other PLC systems and networks.

Coupling/Decoupling different parts of a machine or extending the physical network distance within an installation.



Order information

Network:	Part.No
AS-Interface Master	AB7823
CANopen Master	AB7303
Modbus-TCP Master	AB9003
PROFIBUS Master	AB7803
CANopen Slave	AB7838
CC-Link Slave	AB7871
ControlNet Adapter	AB7864
DeviceNet Adapter	AB7855
EtherNet/IP Adapter	AB7834
EtherCAT Slave	AB7687
Interbus Slave	AB7866
Interbus Fiber Optic	AB7867
Lonworks	AB7872
Modbus Plus Slave	AB7870
Modbus RTU Slave	AB7869
Modbus-TCP Slave	AB7636
PROFIBUS Slave	AB7845
PROFIBUS IO Device	AB7654
PROFINET IRT Device	AB7941

This X-gateway provides one communication interface with ControlNet Adapter/Slave functionality. The second interface can be a choice of 14 other industrial networks (Master/Slave) including, CANopen, Modbus, PROFIBUS, PROFINET, EtherCAT and more.

- An easy way to transmit I/O data between a ControlNet network and any other industrial network
- Interconnects Rockwell PLC systems with other PLC types
- Fast I/O data transfer with average timing between networks: 10-15 ms (approx 5 ms Modbus-TCP Master versions)
- Included Anybus OPC server and IT functions such as web browser, e-mail and FTP client for versions supporting PROFINET and Modbus-TCP
- I/O data configuration via on-board interface or via the free and included Anybus Configuration Manager
- Get up-and-running quickly, no programming skills required
- Robust stand-alone metal housing with CE and $_{c}UL_{us}$ certifications

Configuration

ControlNet I/O data size and other network configurations can be made in various ways depending on the X-gateway version selected.

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

ControlNet	**1** = 2*BNC Coax + RJ45 (NAP) **2** = 5 Mbit/s **3** = 450 byte IN/OUT **4** = Communications adapter, profile n.12

See page 53 for mechanical and technical specifications

Using the Rockwell Automation Integrated Architecture Builder (IAB), engineers can integrate the X-gateway making it easy to include in your network system design.

Anybus X-gateway DeviceNet Adapter to fieldbus and Industrial Ethernet

Connecting a DeviceNet network to any other fieldbus or Industrial Ethernet network

This Anybus X-gateway is a bridge between a DeviceNet network and any other network from another PLC vendor.

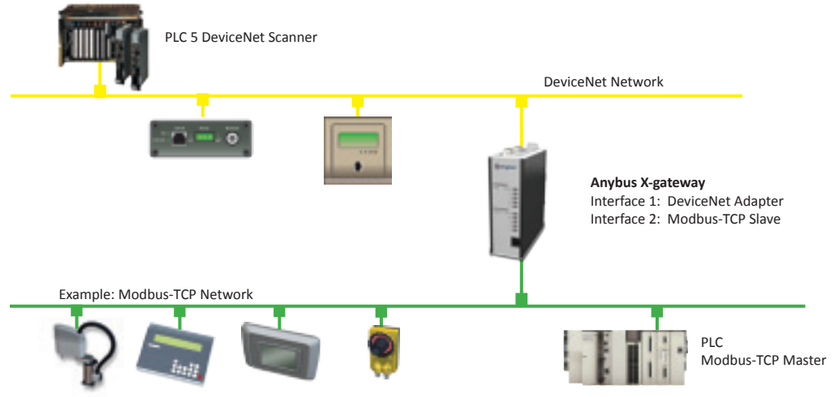
X-gateways are designed for use in industrial automation plants where many different networks are used. They copy cyclic I/O data in both directions enabling a consistent information flow throughout the entire plant.

When to use

Interconnecting PLC systems and networks from similar or different vendors.

Enabling Rockwell Automation devices with a DeviceNet interface to participate on other PLC systems and networks.

Coupling/Decoupling different parts of a machine or extending the physical network distance within an installation.



Order information

Network:	Part.No
AS-Interface Master	AB7822
CANopen Master	AB7302
Modbus-TCP Master	AB9002
PROFIBUS Master	AB7802
CANopen Slave	AB7859
CC-Link Slave	AB7862
ControlNet Adapter	AB7855
DeviceNet Adapter	AB7854
EtherNet/IP Adapter	AB7833
EtherCAT Slave	AB7686
Interbus Slave	AB7857
Interbus Fiber Optic	AB7858
Lonworks	AB7863
Modbus Plus Slave	AB7861
Modbus RTU Slave	AB7860
Modbus-TCP Slave	AB7635
PROFIBUS Slave	AB7844
PROFINET IO Device	AB7653
PROFINET IRT Device	AB7940

This X-gateway provides one communication interface with DeviceNet Adapter/Slave functionality. The second interface can be a choice of 14 other industrial networks (Master/Slave) including, CANopen, Modbus, PROFIBUS, PROFINET, EtherCAT and more.

- An easy way to transmit I/O data between a DeviceNet network and any other industrial network
- Interconnects Rockwell PLC systems with other PLC types
- Fast I/O data transfer with average timing between networks: 10-15 ms (approx 5 ms with CANopen and Modbus-TCP Master versions)
- Included Anybus OPC server and IT functions such as web browser, e-mail and FTP client for versions supporting PROFINET and Modbus-TCP
- I/O data configuration via on-board interface or via the free and included Anybus Configuration Manager
- Get up-and-running quickly, no programming skills required
- Robust stand-alone metal housing with CE and $_{c}UL_{us}$ certifications

Configuration

DeviceNet I/O data size and other network configurations can be made in various ways depending on the X-gateway version selected.

Network Features

DeviceNet Adapter Features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4= Other

DeviceNet	**1** = 5*5.08 PLUG **2** = 125-500 kbit/s **3** = 512 byte IN/OUT **4** = Bit-strobed, Change-of-state or Cyclic I/O

See page 53 for mechanical and technical specifications

Using the Rockwell Automation Integrated Architecture Builder (IAB), engineers can integrate the X-gateway making it easy to include in your network system design.

Anybus X-gateway EtherNet/IP Adapter to fieldbus and Industrial Ethernet

Connecting an EtherNet/IP network to any other fieldbus or Industrial Ethernet network

This Anybus X-gateway is a bridge between an EtherNet/IP network and any other network from another PLC vendor.

X-gateways are designed for use in industrial automation plants where many different networks are used. They copy cyclic I/O data in both directions enabling a consistent information flow throughout the entire plant.

When to use

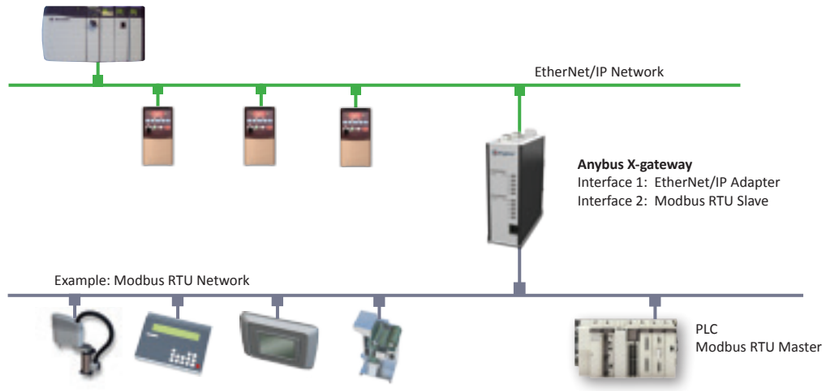
Interconnecting PLC systems and networks from similar or different vendors.

Enabling older fieldbus network migration to the EtherNet/IP network.

Coupling/Decoupling different parts of a machine or extending the physical network distance within an installation.

Order information

Network:	Part.No
AS-Interface Master	AB7820
CANopen Master	AB7306
Modbus-TCP Master	AB9006
PROFIBUS Master	AB7800
CANopen Slave	AB7838
CC-Link Slave	AB7841
ControlNet Adapter	AB7834
DeviceNet Adapter	AB7833
EtherNet/IP Adapter	AB7668
EtherCAT Slave	AB7682
Interbus Slave	AB7836
Interbus Fiber Optic	AB7837
J1939	AB7665
Lonworks	AB7842
Modbus Plus Slave	AB7840
Modbus RTU Slave	AB7839
Modbus-TCP Slave	AB7632
PROFIBUS Slave	AB7832
PROFINET IO Device	AB7649
PROFINET IRT Device	AB7942



This X-gateway provides one communication interface with EtherNet/IP Adapter/Slave functionality. The second interface can be a choice of 14 other industrial networks (Master/Slave) including, CANopen, Modbus, PROFIBUS, PROFINET, EtherCAT and more.

- An easy way to transmit I/O data between an EtherNet/IP network and any other industrial network
- Interconnects Rockwell PLC systems with other PLC types
- Fast I/O data transfer with average timing between networks: 10-15 ms (approx 5 ms with CANopen and Modbus-TCP Master versions)
- Included Anybus OPC server for extended functionality
- EtherNet/IP interface with IT functions such as dynamic web server, supporting downloadable customer specific web pages
- I/O data configuration via on-board interface or via the free and included Anybus Configuration Manager
- Get up-and-running quickly, no programming skills required
- Robust stand-alone metal housing with CE and $_{c}$UL$_{us}$ certifications

Configuration

EtherNet/IP I/O data size and other network configurations can be made in various ways depending on the X-gateway version selected.

Network Features

EtherNet/IP Adapter Features

1 = Network connector, 2 = Baudrate, 3 = I/O data, 4= Other

EtherNet/IP	**1** = RJ45 **2** = 10/100 Mbit/s **3** = 512 IN/OUT **4** = EtherNet/IP group 2 and 3 server. DLR support

**See page 53 for mechanical and technical specifications*

Using the Rockwell Automation Integrated Architecture Builder (IAB), engineers can integrate the X-gateway making it easy to include in your network system design.

Anybus X-gateway EtherCAT Slave to ControlNet, DeviceNet and EtherNet/IP

Connecting an EtherCAT network to a Rockwell Automation PLC system

This Anybus X-gateway is a bridge between an EtherCAT network and a Rockwell Automation PLC system with ControlNet, DeviceNet or EtherNet/IP.

The X-gateway copies cyclic I/O data in both directions enabling data exchange between networks. This ensures for a consistent information flow throughout the entire plant.

When to use

Integrating Rockwell Automation devices and PLC systems to EtherCAT installations.

Coupling/Decoupling different parts of a machine or extending the physical network distance within an installation.

Configuration

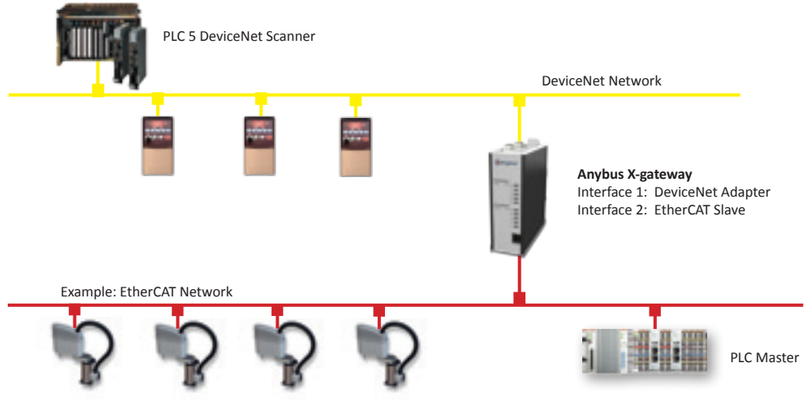
The included Anybus Configuration Manager X-gateway allows you to define the I/O data sizes on each network side and to define the data mapping and separation between cyclic I/O data and parameter data.

Order information

Network:	Part No:
ControlNet	AB7687
DeviceNet	AB7686
EtherNet/IP	AB7682

Optional accessories

USB-RS232 configuration adapter
Part No: 019570



This X-gateway consists of two communication interfaces. The first interface provides EtherCAT Slave functionality. The second interface provides ControlNet, DeviceNet or EtherNet/IP Adapter functionality.

- An easy way to transmit I/O data between an EtherCAT network and ControlNet, DeviceNet or EtherNet/IP
- Allows for cyclic I/O data exchange between networks
- Fast I/O data transfer with average timing between networks: 10-15 ms
- CANopen PDO and SDO data objects supported
- Optional control and status information added to the I/O data for diagnostic purposes
- Included Anybus OPC server for extended functionality available with the EtherNet/IP version only
- Robust stand-alone metal housing with CE and $_{c}$UL$_{us}$ certifications

Using the Rockwell Automation Integrated Architecture Builder (IAB), engineers can integrate the X-gateway making it easy to include in your network system design.

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

EtherCAT	**1** = 2*RJ45 **2** = 100 Mbit/s **3** = 512 byte IN/OUT **4** = Supports CANopen objects PDO and SDO

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

ControlNet	**1** = 2*BNC Coax + RJ45 (NAP) **2** = 5 Mbit/s **3** = 450 byte IN/OUT **4** = Comm adapter, profile n.12
DeviceNet	**1** = 5*5.08 PLUG **2** = 125-500 kbit/s **3** = 512 byte IN/OUT **4** = Bit-strobed, Change-of-state or Cyclic I/O
EtherNet/IP	**1** = RJ45 **2** = 10/100 Mbit/s **3** = 512 byte IN/OUT **4** = EIP group 2, DLR support

**See page 53 for mechanical and technical specifications*

Anybus X-gateway J1939 network to EtherNet/IP

Connecting a CAN-based SAE J1939 protocol to a Rockwell Automation PLC system using EtherNet/IP

This Anybus X-gateway is a bridge between the CAN based SAE J1939 network and a Rockwell Automation PLC system with EtherNet/IP.

The X-gateway copies cyclic I/O data in both directions enabling data exchange between networks. This ensures for a consistent information flow throughout the entire plant.

When to use

As a low-cost stand-alone gateway used on oil and gas equipment, marine vessels, locomotives, pumping stations, generators, engine test cells and other mobile and stationary equipment.

Use to access engine parameters from a Programmable Logic Controller (PLC), HMI or PC and send data to the J1939 network for control and management.

Used as an on-vehicle gateway to interface a J1939 network to an on-board industrial automation-based control and monitoring system or HMI.

Configuration

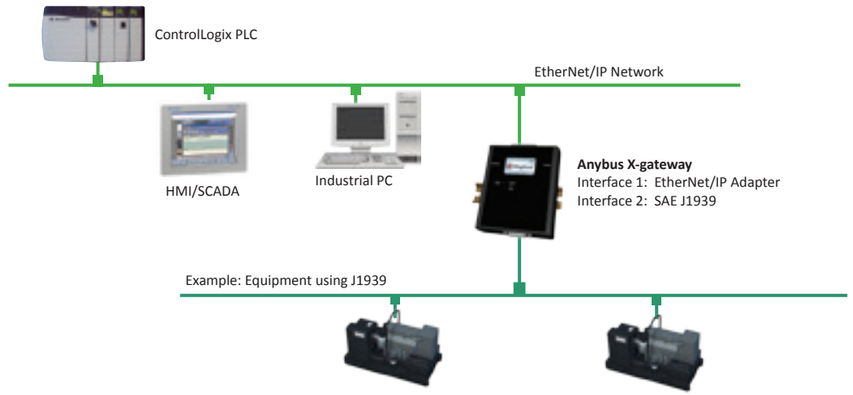
Configuration of the X-gateway J1939 is simple using the free and included Windows™ based BWConfig software. It enables the setting up of an I/O table containing selected J1939 PGNs and the rate that each will be read or written from the J1939 network.

BWConfig will then automatically map the I/O table to a range of addresses accessible from the X-gateway EtherNet/IP interface.

The configuration is downloaded from the PC to the X-gateway via an RS-232 connection and is saved in the FLASH memory.

Order information

Network:	Part No:
EtherNet/IP	AB7665



The X-gateway consists of two communication interfaces. The first interface provides SAE J1939 connectivity. The second interface provides ControlNet, DeviceNet or EtherNet/IP Adapter functionality.

- An easy way to transmit I/O data between J1939 and EtherNet/IP. With additional support for Modbus-TCP.
- Fast I/O data transfer with average timing between networks: 10-15 ms
- Use to access engine parameters from a Programmable Logic Controller (PLC), HMI or PC
- Transmission and reception of all types of J1939 messages, including PDU1, PDU2, broadcast and destination specific
- J1939 Transport Protocol for transmission and reception of large messages (Both connection based (RTS/CTS) and broadcast (BAM) are supported
- Included Anybus OPC server for extended functionality available with the EtherNet/IP version
- EtherNet/IP interface with IT functions such as dynamic web server, supporting downloadable customer specific web pages
- Robust stand-alone metal housing with HazLoc, ATEX and CE certifications

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

J1939	**1** = 5-pole 5.08 mm **2** = N/A **3** = 9 - 1785 bytes **4** = Accordance to J1939-81 spec

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

EtherNet/IP	**1** = RJ45 **2** = 10/100 Mbit/s **3** = 512 byte IN/OUT **4** = EIP group 2, DLR support

**See page 53 for mechanical and technical specifications*

Using the Rockwell Automation Integrated Architecture Builder (IAB), engineers can integrate the X-gateway making it easy to include the gateway in your system network design.

Anybus X-gateway Modbus RTU Slave to ControlNet, DeviceNet and EtherNet/IP

Connecting a Modbus RTU network to a Rockwell Automation PLC system

This Anybus X-gateway is a bridge between a Modbus RTU network and a Rockwell Automation PLC system with ControlNet, DeviceNet or EtherNet/IP.

The X-gateway copies cyclic I/O data in both directions enabling data exchange between networks. This ensures for a consistent information flow throughout the entire plant.

For Modbus RTU Master See page 8

When to use

Integrating Rockwell Automation devices and PLC systems to Modbus RTU installations.

Retro-fitting devices on an older installation with a Modbus RTU network into a modern CIP architecture.

Coupling/Decoupling different parts of a machine or extending the physical network distance within an installation.

Did you know?

Anybus Communicator RTU with RTU Master functionality could be used instead if there is no existing Modbus RTU PLC Master within the installation.

Configuration

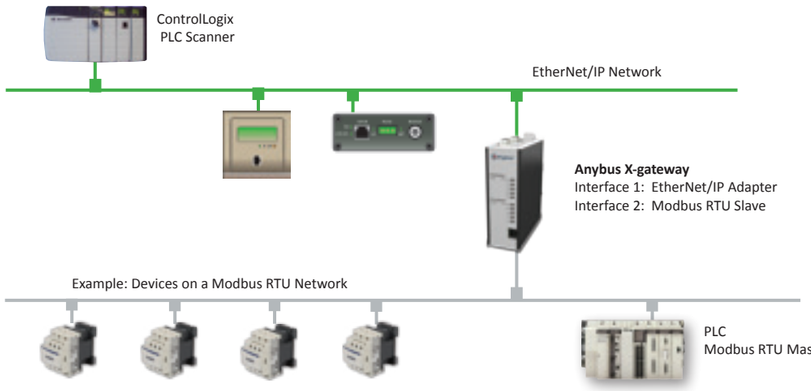
The included Anybus Configuration Manager X-gateway allows you to define the I/O data sizes on each network side and to define the data mapping and separation between cyclic I/O data and parameter data.

Order information

Network:	Part No:
ControlNet	AB7869
DeviceNet	AB7860
EtherNet/IP	AB7839

Optional accessories

USB-RS232 configuration adapter
Part No: 019570



The X-gateway consists of two communication interfaces. The first interface provides Modbus RTU Slave functionality. The second interface provides ControlNet, DeviceNet or EtherNet/IP Adapter functionality.

- An easy way to transmit I/O data between a Modbus RTU network and ControlNet, DeviceNet or EtherNet/IP
- Allows for cyclic I/O data exchange between networks
- Fast I/O data transfer with average timing between networks: 10-15 ms
- Support for Modbus RTU functions: 1, 2, 3, 4, 5, 6, 8, 15,16, 22, 23
- Included Anybus OPC server for extended functionality available with the EtherNet/IP version
- EtherNet/IP side with IT functions such as dynamic web server, for downloadable customer specific web pages
- Robust stand-alone metal housing with CE and $_{c}$UL$_{us}$ certifications

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

Modbus RTU	**1** = DSUB9F **2** = 1,2-57,6 kbit/s **3** = 256 registers in each direction **4** = RS232 and RS485 transmission

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

ControlNet	**1** = 2*BNC Coax + RJ45 (NAP) **2** = 5 Mbit/s **3** = 450 byte IN/OUT **4** = Comm adapter, profile n.12
DeviceNet	**1** = 5*5.08 PLUG **2** = 125-500 kbit/s **3** = 512 byte IN/OUT **4** = Bit-strobed, Change-of-state or Cyclic I/O
EtherNet/IP	**1** = RJ45 **2** = 10/100 Mbit/s **3** = 512 byte IN/OUT **4** = EIP group 2, DLR support

**See page 53 for mechanical and technical specifications*

Using the Rockwell Automation Integrated Architecture Builder (IAB), engineers can integrate the X-gateway making it easy to include in your network system design.

Anybus X-gateway Modbus-TCP Slave to ControlNet, DeviceNet and EtherNet/IP

Connecting a Modbus-TCP network to a Rockwell Automation PLC system

This Anybus X-gateway is a bridge between a Modbus- TCP network and a Rockwell Automation PLC system with ControlNet, DeviceNet or EtherNet/IP.

The X-gateway copies cyclic I/O data in both directions enabling data exchange between networks. This ensures for a consistent information flow throughout the entire plant.

For Modbus-TCP Master see page 16

When to use

Integrating Rockwell Automation devices and PLC systems to Modbus-TCP installations.

Coupling/Decoupling different parts of a machine or extending the physical network distance within an installation.

Configuration

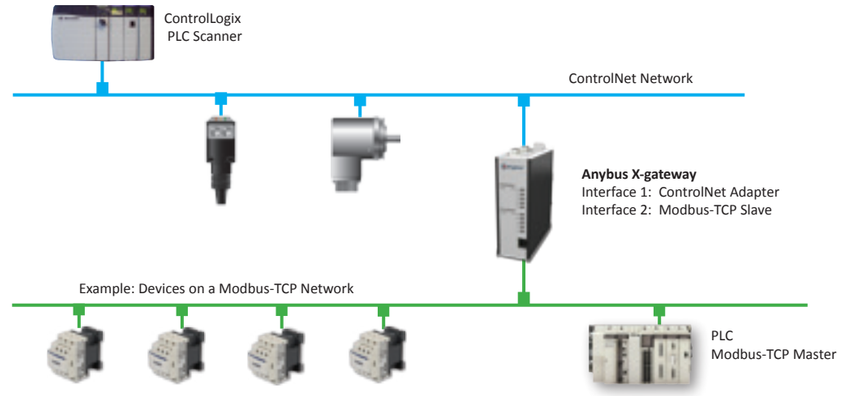
The included Anybus Configuration Manager X-gateway allows you to define the I/O data sizes on each network side and to define the data mapping and separation between cyclic I/O data and parameter data.

Order information

Network:	Part No:
ControlNet	AB7636
DeviceNet	AB7635
EtherNet/IP	AB7632

Optional accessories

USB-RS232 configuration adapter
Part No: 019570



The X-gateway consists of two communication interfaces. The first interface provides Modbus-TCP Slave functionality. The second interface provides ControlNet, DeviceNet or EtherNet/IP Adapter functionality.

- An easy way to transmit I/O data between a Modbus TCP network to ControlNet, DeviceNet or EtherNet/IP
- Allows for cyclic I/O data exchange between networks
- Fast I/O data transfer with average timing between networks: 10-15 ms
- Modbus-TCP class 0, class 1 and partially class 2 slave functionality
- Included Anybus OPC server for extended functionality available with the EtherNet/IP version
- EtherNet/IP side with IT functions such as dynamic web server, for downloadable customer specific web pages
- Robust stand-alone metal housing with CE and $_{c}UL_{us}$ certifications

Using the Rockwell Automation Integrated Architecture Builder (IAB), engineers can integrate the X-gateway making it easy to include in your network system design.

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

Modbus-TCP	**1** = 2*RJ45 **2** = 100 Mbit/s **3** = 512 byte IN/OUT **4** = Classes 0, 1 and partial Class 2

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

ControlNet	**1** = 2*BNC Coax + RJ45 (NAP) **2** = 5 Mbit/s **3** = 450 byte IN/OUT **4** = Communications adapter, profile n.12
DeviceNet	**1** = 5*5.08 PLUG **2** = 125-500 kbit/s **3** = 512 byte IN/OUT **4** = Bit-strobed, Change-of-state or Cyclic I/O
EtherNet/IP	**1** = RJ45 **2** = 10/100 Mbit/s **3** = 512 byte IN/OUT **4** = EIP group 2, DLR support

**See page 53 for mechanical and technical specifications*

Anybus X-gateway PROFIBUS DP-V1 Slave to ControlNet, DeviceNet and EtherNet/IP

Connecting a PROFIBUS network to a Rockwell Automation PLC system

This Anybus X-gateway is a bridge between a PROFIBUS network and a Rockwell Automation PLC system with ControlNet, DeviceNet or EtherNet/IP.

The X-gateway copies cyclic I/O data in both directions enabling data exchange between networks. This ensures for a consistent information flow throughout the entire plant.

For PROFIBUS DP-V1 Master see page 17

When to use

Integrating Rockwell Automation devices and PLC systems to PROFIBUS installations.

Retro-fitting an existing installation and migrating from PROFIBUS to Industrial Ethernet (EtherNet/IP)

Coupling/Decoupling different parts of a machine or extending the physical network distance.

Configuration

The included Anybus Configuration Manager X-gateway allows you to define the I/O data sizes on each network side and to define the data mapping and separation between cyclic I/O data and parameter data.

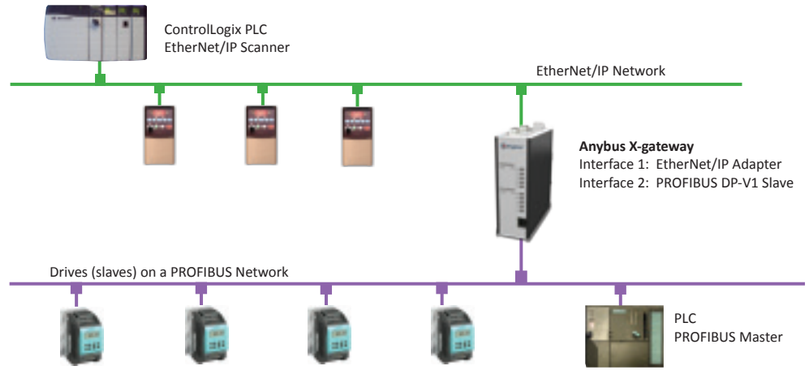
Order information

Network:	Part No:
ControlNet	AB7845
DeviceNet	AB7844
EtherNet/IP	AB7832

Optional accessories

USB-RS232 configuration adapter
Part No: 019570

Using the Rockwell Automation Integrated Architecture Builder (IAB), engineers can integrate the X-gateway making it easy to include in your network system design.



The X-gateway consists of two communication interfaces. The first interface provides PROFIBUS DP/DP-V1 Slave functionality. The second interface provides ControlNet, DeviceNet or EtherNet/IP Adapter functionality.

- An easy way to transmit I/O data between a PROFIBUS network to ControlNet, DeviceNet or EtherNet/IP
- Allows for cyclic I/O data exchange between networks
- Fast I/O data transfer with average timing between networks: 10-15 ms
- Additional parameter data supported (depending on network combination)
- Optional control and status information added to the I/O data for diagnostic purposes
- PROFIBUS functionality such as Watchdog, Sync and Freeze and diagnostics. Standard DP as well as DP-V1 acyclic data services (Class1/Class2)
- Included Anybus OPC server for extended functionality available with the EtherNet/IP version
- Robust stand-alone metal housing with CE and $_{c}UL_{us}$ certifications

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

PROFIBUS	**1** = DSUB9 **2** = Up to 12 Mbit/s, **3** = 244 bytes IN/OUT **4** = DP/DP-V1

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

ControlNet	**1** = 2*BNC Coax + RJ45 (NAP) **2** = 5 Mbit/s **3** = 450 byte IN/OUT **4** = Comm adapter, profile n.12
DeviceNet	**1** = 5*5.08 PLUG **2** = 125-500 kbit/s **3** = 512 byte IN/OUT **4** = Bit-strobed, Change-of-state or Cyclic I/O
EtherNet/IP	**1** = RJ45 **2** = 10/100 Mbit/s **3** = 512 byte IN/OUT **4** = EIP group 2, DLR support

**See page 53 for mechanical and technical specifications*

Anybus X-gateway PROFINET I/O Slave to ControlNet, DeviceNet and EtherNet/IP

Connecting a PROFINET network to a Rockwell Automation PLC system

This Anybus X-gateway is a bridge between a PROFINET I/O network and a Rockwell Automation PLC system with ControlNet, DeviceNet or EtherNet/IP.

The X-gateway copies cyclic I/O data in both directions enabling data exchange between networks. This ensures a consistent information flow throughout the entire plant.

When to use

Integrating Rockwell Automation devices and PLC systems to PROFINET installations.

Coupling/Decoupling different parts of a machine or extending the physical network distance within an installation.

Configuration

The included Anybus Configuration Manager X-gateway allows you to define the I/O data sizes on each network side and to define the data mapping and separation between cyclic I/O data and parameter data.

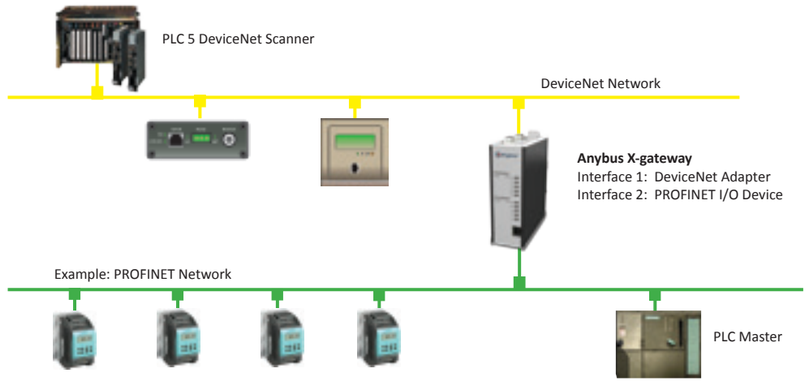
Order information

Network:	Part No:
ControlNet	AB7654
DeviceNet	AB7653
EtherNet/IP	AB7849

Optional accessories

USB-RS232 configuration adapter
Part No: 019570

Using the Rockwell Automation Integrated Architecture Builder (IAB), engineers can integrate the X-gateway making it easy to include in your network system design.



The X-gateway consists of two communication interfaces. The first interface provides PROFINET I/O Device/Slave functionality. The second interface provides ControlNet, DeviceNet or EtherNet/IP Adapter functionality.

- An easy way to transmit I/O data between a PROFINET network to ControlNet, DeviceNet or EtherNet/IP
- Allows for cyclic I/O data exchange between networks
- Fast I/O data transfer with average timing between networks: 10-15 ms
- Additional parameter data supported (depending on network combination)
- Optional control and status information added to the I/O data for diagnostic purposes
- PROFINET IO device functionality Conformance Class A
- Included Anybus OPC server for extended functionality available with the EtherNet/IP version
- Robust stand-alone metal housing with CE and $_{c}$UL$_{us}$ certifications

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

PROFINET	**1** = RJ45 **2** = 10/100 Mbit/s **3** = 220 byte IN/OUT **4** = RT Communication and Cyclic data exchange, IO Device, Class A

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

ControlNet	**1** = 2*BNC Coax + RJ45 (NAP) **2** = 5 Mbit/s **3** = 450 byte IN/OUT **4** = Communications adapter, profile n.12
DeviceNet	**1** = 5*5.08 PLUG **2** = 125-500 kbit/s **3** = 512 byte IN/OUT **4** = Bit-strobed, Change-of-state or Cyclic I/O
EtherNet/IP	**1** = RJ45 **2** = 10/100 Mbit/s **3** = 512 byte IN/OUT **4** = EIP group 2, DLR support

See page 53 for mechanical and technical specifications

Anybus X-gateway PROFINET IRT Slave to ControlNet, DeviceNet and EtherNet/IP

Connecting a PROFINET IRT network to a Rockwell Automation PLC system

This Anybus X-gateway is a bridge between a PROFINET IRT network and a Rockwell Automation PLC system with ControlNet, DeviceNet or EtherNet/IP.

The X-gateway copies cyclic I/O data in both directions enabling data exchange between networks. This ensures for a consistent information flow throughout the entire plant.

When to use

Integrating Rockwell Automation devices and PLC systems to PROFINET IRT installations.

Did you know?

The AIDA Group - Audi, BMW, Daimler, Porsche and VW standardize on PROFINET technology.
Automation devices must fulfil specific PROFINET capabilities to be approved for their production facilities. As the X-gateway technology is certified by AIDA, Rockwell Automation equipment could be installed in these automotive plants.

Configuration

The included Anybus Configuration Manager X-gateway allows you to define the I/O data sizes on each network side and to define the data mapping and separation between cyclic I/O data and parameter data.

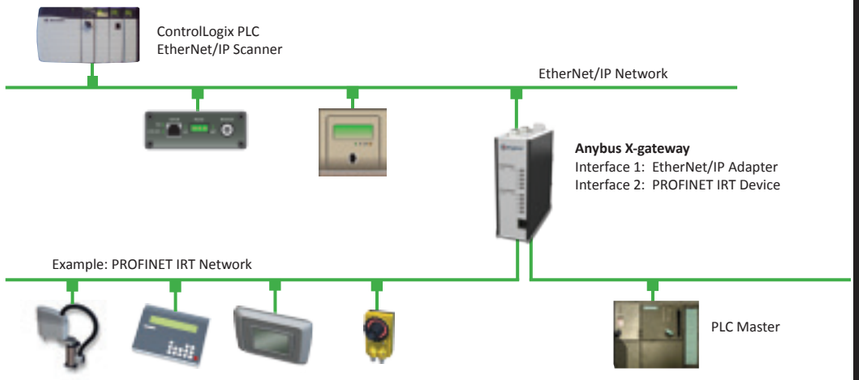
Order information

Network:	Part No:
ControlNet	AB7941
DeviceNet	AB7940
EtherNet/IP	AB7942

Optional accessories

USB-RS232 configuration adapter
Part No: 019570

Using the Rockwell Automation Integrated Architecture Builder (IAB), engineers can integrate the X-gateway making it easy to include in your network system design.



The X-gateway consists of two communication interfaces. The first interface provides PROFINET IRT Device/Slave functionality. The second interface provides ControlNet, DeviceNet or EtherNet/IP Adapter functionality.

- An easy way to transmit I/O data between a PROFINET IRT network to ControlNet, DeviceNet or EtherNet/IP
- Allows for cyclic I/O data exchange between networks
- Integrated PROFINET IRT 2-port switch functionality
- Fast I/O data transfer between the two networks
- Additional parameter data supported (depending on network combination)
- Optional control and status information added to the I/O data for diagnostic purposes
- PROFINET IRT device functionality Conformance Class C
- Included Anybus OPC server for extended functionality available with the EtherNet/IP version
- Robust stand-alone metal housing with CE and $_{c}$UL$_{us}$ certifications

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

PROFINET IRT	**1** = 2*RJ45 **2** = 100 Mbit/s **3** = 220 byte IN/OUT **4** = IRT Communication and Cyclic data exchange, IO Device, Class C

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

ControlNet	**1** = 2*BNC Coax + RJ45 (NAP) **2** = 5 Mbit/s **3** = 450 byte IN/OUT **4** = Communications adapter, profile n.12
DeviceNet	**1** = 5*5.08 PLUG **2** = 125-500 kbit/s **3** = 512 byte IN/OUT **4** = Bit-strobed, Change-of-state or Cyclic I/O
EtherNet/IP	**1** = RJ45 **2** = 10/100 Mbit/s **3** = 512 byte IN/OUT **4** = EIP group 2, DLR support

See page 53 for mechanical and technical specifications

netbiter®

Remote Management

netbiter® *Save time, save energy, save resources!™*

Remotely connect to your Rockwell equipment in less than 10 minutes with Remote Access!

Use your Rockwell software tools remotely just as if you were on site. With a Netbiter gateway connected to your Rockwell PLC or machine, you can do programming or debugging from any location using RSLogix Designer, RSNetworx or RSLinx.

Just like being on site!

"Remote Access" is a feature within the Netbiter Remote Management solution which allows you to open up a secure connection to remote machinery and devices. Through this connection, it is possible to do remote configuration, programming or debugging of your own device from any location. Once the communication tunnel is open, you use your standard configuration software to configure the PLC or device.

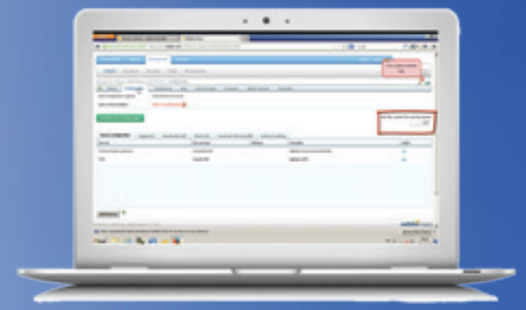
How it works

On your computer, you run the Netbiter QuickConnect software and a secure tunnel is created to the Netbiter gateway which is connected to the remote device. You can then simply open RSLogix or RSLinx and configure or debug just as if you were on site.

The connection is established via Netbiter Argos in the cloud (www.netbiter.net) which acts as a routing portal. A Netbiter gateway registers at the Netbiter Argos cloud portal at power-up and establishes a remote connection without the need for opening inbound ports in firewalls or setting up VPN connections on site. The result is a secure connection which is set up a matter of minutes.

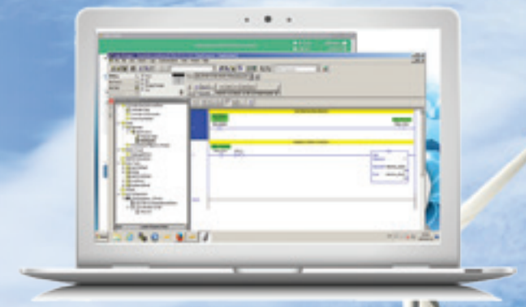
Solid security

Security together with ease-of-use are the two main traits of Netbiter Remote Access. Data is encrypted both to and from Netbiter Argos and you can also choose a two-step verification method (you log in with a password and also get an SMS to verify your identity). This ensures secure data connection to your remote equipment.



Enable Remote Access inside Netbiter Argos.

Enter the IP address of your remote machine or PLC.



Open RSLogix and configure as usual.

Is your device ready for Remote Access?

Almost any device can be connected to Netbiter Remote Access. A list of verified devices can be found on netbiter.com and HMS can assist you in testing and verifiying your particular device.

View video: Setup in 7:04

See the full process from connecting the Netbiter to the PLC, etablishing the connection and configuring the PLC. https://www.youtube.com/watch?v=okz4UdZ8MHI

netbiter® *Save time, save energy, save resources!™*

The Netbiter Argos service "View and Control" enables you to monitor and control your field equipment in a fast and efficient way.

Solution for all industries

Netbiter offers complete end-to-end solutions for power generators, renewable energy, telecom base stations, tank monitoring, building and HVAC, industrial automation and much more.

Connect and go!

Simply connect any of the Netbiter EasyConnect™ communication gateways to your equipment in the field and you will have an instant connection to the cloud-based Netbiter Argos™ data center, hosted by HMS.

Cloud management features through Netbiter Argos™

Netbiter Argos is a web service for monitoring and controlling your field equipment. By logging on to Netbiter Argos at www.netbiter.net, you are presented with a host of "cloud management services" that enable you to monitor and control your equipment in a fast, efficient and professional way.

Multi-language support

The Netbiter Argos data center is securely hosted by HMS with redundant servers in several locations. Netbiter Argos is available in 9 languages: English, German, French, Italian, Portuguese, Spanish, Swedish, Japanese and Chinese.

View and Control: Features in Netbiter Argos

Visualization dashboards

Alarm management

Data trends / reporting

Remote access - configuration

netbiter® *Save time, save energy, save resources!™*

The Netbiter Argos service "Manage and Analyze" service level provides endless possibilities to monitor, control or integrate equipment data from one or multiple sites

Manage and Analyze provides functions such as

- A Netbiter Argos account with the ability to organize and manage multiple sites
- The ability to administrate users and individual access right
- Account administrator and free additional users (admin manages users, system configuration and deployment, user levels available for project manager and regular users)
- Google Map view for account view (all sites), project view and individual sites
- Reports (manually generated or scheduled data reports)
- API for enterprise and third party software integration, functions such as
  - Project & device information
  - Data Export services
  - Alarm states / history
  - Parameter read/write
- For Remote Access users Manage and Analyze provides the ability to consolidate and manage access to multiple sites

Manage and Analyze: Features in Netbiter Argos

User and project management

Netbiter API integration

Visualization dashboards

Alarm management

Data trends / reporting

Remote access - configuration

Netbiter EC350

Connects to field equipment via serial, Ethernet or I/O connection. Sends data to Netbiter Argos via the cellular network (3G/GSM/GPRS) or Ethernet.

Netbiter EC310

Connects to field equipment via serial, Ethernet or I/O connection. Sends data to Netbiter Argos via Ethernet.

Netbiter EC220

Connects to field equipment via serial or I/O connection. Sends data to Netbiter Argos via the cellular network (GSM/GPRS).

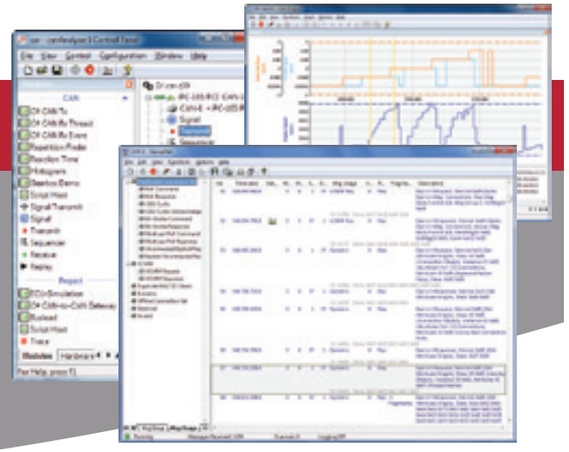
netbiter® *EasyConnect communication gateways*

TECHNICAL SPECIFICATIONS			
Description	EC350	EC310	EC220
Order code	NB1005	NB1007	NB1000
Ethernet	10/100 Mbit/s	10/100 Mbit/s	-
3G/GSM/GPRS	3G: Five Band UMTS/HSPA+ (WCDMA/FDD) (850/800, 900, 1900 and 2100 MHz) GPRS: Quad-Band GPRS Class 12 (850/900/1800/1900 MHz)	-	Quad band GPRS Class 12 850/900/1800/1900 MHz
Relay output (max 24 V, AC/DC, 1A)	1	1	1
Digital inputs	2 (Dry contact)	2 (Dry contact)	2 (Isolated, max 24 V DC)
Analog inputs (PT100, 0-10 V or 0-20 mA)	4, all supporting 0-10 V or 0-20 mA and 2 supporting PT100	4, all supporting 0-10 V or 0-20 mA and 2 supporting PT100	2
Analog output (0-10 V)	-	-	1
Serial port #1	RS-232, 1,2 kbit/s to 115,2 kbit/s	RS-232, 1,2 kbit/s to 115,2 kbit/s	RS-232 up to 115,2 kbit/s
Serial port #2	RS-485, 1,2 kbit/s to 115,2 kbit/s	RS-485, 1,2 kbit/s to 115,2 kbit/s	RS-485 up to 115,2 kbit/s (isolated)
GPS	Built-in (antenna via SMA female)	-	External GPS via RS 232
Antenna connector	SMA female	-	SMA female
Protocols	Modbus-RTU, Modbus TCP	Modbus-RTU, Modbus TCP	Modbus-RTU
Wall mounting / DIN rail*	YES/YES	YES/YES	YES / YES
Mechanical dimensions (L•W•H)	92 x 135 x 27 mm	92 x 135 x 27 mm	92 x 115 x 25 mm
Operating temperature	-40 to +65 °C	-40 to +65 °C	-30 to +65 °C
Power supply	12-48 VDC	12-48 VDC	9-24 V DC
Power consumption (max at 24 Vdc)	4.5 W	2.5 W	2 W
Certifications	CE, $_{c}$UL$_{US}$, JATE, Telec, RCM, FCC, IC, PTCRB, (ATEX/Haz.Loc pending)	CE ($_{c}$UL$_{US}$, ATEX/Haz.Loc pending)	CE, $_{c}$UL$_{US}$, FCC/IC, PTCRB
Housing	Metal (Plastic version to come)	Metal (Plastic version to come)	Metal
Remote access functionality	YES	YES	-

IXXAT®

Communication solutions for machines, safety and automotive

canAnalyser for DeviceNet



Analyzing tool for DeviceNet and CAN layer-2 based networks

The canAnalyser is a powerful tool for analyzing and stimulating CAN and DeviceNet systems and devices.

Using the DeviceNet module extension received CAN messages can be interpreted according to the ODVA DeviceNet standard and received parameters are displayed according to Message Group, MAC ID and Message ID.

When to use

During development, testing, setup and service of DeviceNet and CAN layer-2 based networks for analyzing data and stimulating devices and systems.

Order information

Version	Order number
canAnalyser	1.02.0133.30000
canAnalyser lite	1.02.0166.00000
DeviceNet Module for canAnalyser or canAnalyser-lite	1.02.0148.00000
canAnalyser Bundle DeviceNet (canAnalyser + DeviceNet Module + USB-to-CAN II ind. with galv. iso.)	1.03.0133.30002
canAnalyser lite Bundle DeviceNet (canAnalyser-lite + DeviceNet Module + USB-to-CAN comp. with galv. iso.)	1.03.0166.00002

canAnalyser is a very versatile tool for the development, testing and maintenance of Controller Area Network systems. The software package is based on a modular concept and employs special features that offer exceptional openness and extendibility.

The standard version of the canAnalyser offers functions covering many areas of application, such as:

- Online monitoring of bus traffic
- Message transmission (one-off, cyclic, sequences)
- Parallel monitoring of several CAN buses
- Recording of CAN messages with various trigger conditions
- Recording and display of bus load
- Graphic display of message contents over the time axis
- Creation of command controlled message sequences

Customer specific functions can be easily integrated via an open .NET programming interface in the form of individual modules.
The canAnalyser is based on a modular concept. Based on the software version different functionality is provided:

Functions	canAnalyser	canAnalyser lite
Message reception/display in scroll or overwrite mode	x	x
Transmission of single and cyclic messages	x	x
Message recording and transmission of records	x	x
Transmission message sequences	x	x
Display of interpreted signals as graphic	x	-
Display of interpreted signals in scroll/overwrite mode	x	-
Signal transmission	x	-
Display of statistics	x	x
Scripting host	x	-
DeviceNet interpretation	o	o

o = optimal, x = included, - = not included

The canAnalyser is based on the VCI driver from IXXAT and can therefore be used with all IXXAT PC interfaces.

DeviceNet Module

Using the DeviceNet module the functionality can be extended by an interpretation of all received messages according to the ODVA DeviceNet standard and the display of received parameters according to Message Group, MAC ID and Message ID.

Incoming information is divided into

- Unconnected Message
- Explicit Message
- I/O Message
- Duplicate MAC-ID Check Message
- Device Heartbeat Message
- Device Shutdown Message
- Offline Connection Set
- Reserved and invalid DeviceNet messages

and their content is decoded depending on their type (Explicit Messages, I/O Messages, Unconnected).

Signal Interpretation

The canAnalyser is able to interpret and display the signals received within the CAN messages. This powerful signal interpretation is managed within a database. Databases are easily created and modified by using the included editor tool. Statistical values like bus load or error frames can be evaluated together with the signals from a database. New, script-based statistics functions also permit quick, easy adaptation to specific application needs.

Bundles

canAnalyser and canAnalyser-lite are also offered as bundle including in addition the DeviceNet module and a suitable USB-PC-Interface.

PC Interfaces for DeviceNet and CAN Layer-2

For customized PC based applications and conformance testing

IXXAT PC interfaces are offered in a large number of variants for all areas of application and for the most common PC interface standards. Each interface is delivered with a large driver package enabling the easy development of customer specific applications and also is supported by our analyzing and test tools.

When to use

For the development of customized PC-based applications as well as for analyzing and test of DeviceNet systems.

Order information

Version	Order number
USB-to-CAN V2 compact one CAN channel	1.01.0281.12001
USB-to-CAN V2 compact one CAN channel, galvanic isolation	1.01.0281.12002
CAN-IB100/PCIe one CAN channel	1.01.0231.11000
CAN-IB200/PCIe two CAN channels, galvanic isolation	1.01.0233.22001
Driver for ODVA DeviceNet Protocol Conformance Test Software	1.02.0261.00000

For further interface variants please see www.ixxat.de

The IXXAT CAN interfaces enable PC applications to access CAN networks with an uniquely variety of different PC interface standards. The customer can select an optimum PC/CAN interface according to the application, performance requirement or required unit costs. More than 10 different PC interface standards are supported so far.

SELECTED INTERFACES

USB-to-CAN V2

Cost-effective CAN interface family for the USB port

The USB-to-CAN V2 is the ideal interface for analysis and mobile service of CAN and DeviceNet systems. It is available in different variants with either one or two CAN interfaces based on ISO 11898-2. Additional options include galvanically isolated CAN interfaces, sub-D9 plug or alternatively RJ45, an embedded version and bulk variants.

CAN-IB100/PCIe and CAN-IB200/PCIe

Flexible PCIexpress CAN interface family

With the CAN-IB100/PCIe (passive) and CAN-IB200/PCIe (with 32 bit µC) IXXAT offers two interface boards based on a modern and highly modular concept. The interfaces are available with a standard or an optional low-profile slot bracket and ideally suited for PC based control or analyzing applications. The boards can be equipped with up to four CAN channels (Expansion Board) and an optional galvanic isolation. Besides the PCIe-Versions, the board family also includes variants for PCIe Mini and PCIe 104.

ODVA DeviceNet Conformance Test Driver

The ODVA DeviceNet Conformance Test Driver from IXXAT enables the use of the official ODVA DeviceNet Protocol Conformance Test Software on the IXXAT CAN interfaces. It is supplied as an add-on to the universal IXXAT CAN driver VCI (Virtual CAN Interface). A list of the supported IXXAT CAN interfaces can be found on the IXXAT webpage.

Customized applications and Driver Support

Drivers for Windows (VCI) and real-time operating systems (ECI for Linux, INtime, RTX and QNX) are included in the scope of delivery for each interface and enable the easy and fast development of customer specific applications. The drivers have an identical programming interface for all CAN interfaces allowing to switch between the interfaces without adapting the application at any time.

The VCI CAN driver is available for 32/64 bit Windows operating systems and also includes a simple CAN bus monitor “miniMon”, which enables the transmission and reception of CAN messages.

In addition to customized applications, the CAN interfaces also form the basis for our comprehensive tool chain consisting of analysis and test tools.

Quality you can rely on

All IXXAT CAN interfaces are developed and produced in accordance with the highest quality standards and 100 % tested before delivery.

CAN Repeaters

Easy set-up of tree and star topologies for CAN and DeviceNet systems

CAN repeaters enable the physical coupling of CAN and DeviceNet network segments. They can be used to easily change the topology of DeviceNet systems to set-up tree or star networks. The integrated galvanic isolation provides a built-in protection against over voltage and the anti-noise circuit eliminates the effects of EMI.

When to use

CAN repeaters are used to improve the system reliability, for the galvanic protection of system segments or devices as well as for reducing wiring costs.

Order information

On page 41

Highlights

- Cost savings due to simple wiring
- Increased system reliability
- Line protection up to 4 kV
- Almost no influence on real-time behavior
- DIN-Rail backbone bus to line up and connect the devices easily
- Fiber optic enables transmission in areas with high electromagnetic disturbances
- OEM versions and design in solutions available

Increased system reliability and protection

CAN and DeviceNet lines coupled with IXXAT repeaters are independent electric segments that can be optimally terminated in terms of signals. This substantially increases the system's reliability .

The implemented monitoring function detects lines disturbed by permanent dominant levels. These lines are disconnected automatically, thus allowing the remaining network to continue functioning normally. After the fault has been eliminated, the disconnected segment is automatically reconnected to the network.

Depending on the type of repeater, the CAN lines are protected among each other and against the power supply up to 4 kV. In addition, the built-in CAN bus choke provides protection against signal peaks.

System extension and increased number of nodes

The freedom of using drop-lines and star topologies simplifies the wiring and allows system layouts which could not be realized using the common line structure (Picture 1).

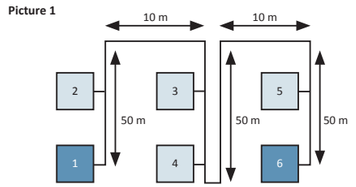
Furthermore, according to the transceiver output capacities, the division of a CAN system into several subsystems, connected via CAN repeaters, increases the maximum number of bus nodes.

Fast and transparent

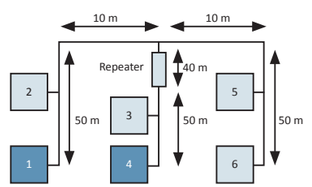
Using repeaters does not influence the real-time behavior of a system because in terms of transmission behavior, it corresponds to a network that consists only of lines.

Depending on Repeater version or physical layer, typical signal delay is between 150-300 ns, which is equal to a 30-60 m line length. Data transmission is transparent, so it can be used with any higher layer protocol (e.g, DeviceNet, CANopen) or customer-specific protocols.

Picture 1



Conventional bus structure
The distance between the two nodes furthest apart (1 & 6) is 220 meters



Extended structure with drop line
The distance between the two nodes furthest apart (1 & 4 or 4 & 6) is 150 meters

CAN Bridges and Gateways

Easy system extension and remote access for CAN and DeviceNet systems

The use of bridges and gateways opens up a large number of configuration possibilities. For example, CAN and DeviceNet systems can be implemented over a larger area, devices without CAN interfaces can be connected to CAN systems or CAN and DeviceNet systems can be coupled using different technologies, such as Bluetooth or Ethernet.

When to use

CAN bridges are used for increasing the system extension, to increase the system reliability and to couple systems over larger distances using Ethernet or Bluetooth.

Order information

On page 41

Highlights

- Cost savings due to simple wiring
- Allows larger system expansion
- Filter and conversion functionality
- Increased system reliability
- Line protection by galvanic isolation
- Bridging of large distances and easy system access using Bluetooth, Ethernet...
- OEM versions and design in solutions available

CAN Bridges

CAN bridges can link networks of different bit rates or protocols with each other. They are based on the store-(modify)-forward principle where CAN or DeviceNet messages are received by a sub-network and then transmitted to the other sub-network. Translation and filter rules can also be used, allowing a protocol adaptation to be carried out. A bridge can, therefore, provide simple gateway functions. CAN bridges are appropriate for creating hierarchical networks by transferring only the information to the connected sub-networks via bridges which are relevant to the sub-network.

The bridge function can also be executed with the aid of other transmission systems. For example, the CAN-Ethernet-CAN bridge is set-up by two CAN@net II gateways which enable connection to remote CAN networks.

Gateways

As an extension to the CAN bridges, CAN gateways allow access to CAN networks via other communication systems. In each case, the protocols of the connected bus systems are mapped to the other communication model.

Besides a PC interface and bridge mode, the CAN@net II and CANblue II provide a gateway mode enabling easy remote access to CAN and DeviceNet networks for e.g. mobile devices by using a standard ASCII protocol.

Customized solutions

HMS also offers OEM versions of its products and develops highly customized hardware and software solutions for its customers.

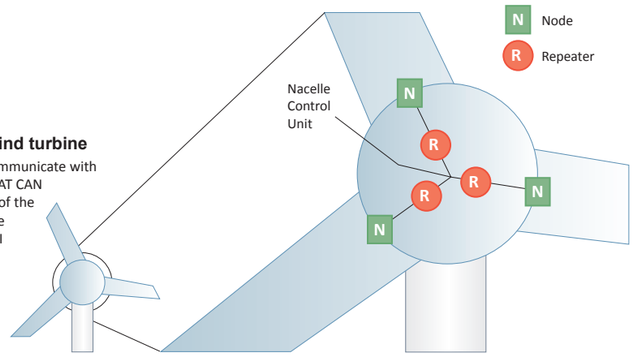
Customization of the CANbridge can be easily performed by the customer itself using the Application Development Kit offered for the CANbridge.

Accessories

The T bus connector enables the backbone bus connection of the stackable repeaters.

Application scenario in wind turbine

Three pitch control-drives shall communicate with the master controller via CAN. IXXAT CAN Repeaters enable star connection of the individual blades and enable stable communication by eliminating EMI effects and rebuild signals for transmission via sliprings.



IXXAT® CAN Repeaters, CAN Bridges and Gateways

TECHNICAL SPECIFICATIONS					
Product	**CAN-CR200**	**CAN-CR210/FO**	**CAN-CR220**	**CAN-Repeater**	**FO-Repeater**
Description	Stackable ISO 11898-2 CAN repeater	Stackable ISO 11898-2 to fiber optic converter	ISO 11898-2 CAN repeater with 4 kV galvanic isolation	ISO 11898-2 CAN repeater with low-speed option	ISO 11898-2 to fiber optic converter
CAN bus interface	2 x ISO 11898-2; 1 x ISO 11898-2 DIN rail bus	1 x ISO 11898-2; 1 x ISO 11898-2 DIN rail bus	2 x ISO 11898-2	2 x ISO 11898-2; optional ISO 11898-2 to ISO 11898-3	1 x ISO 11898-2
Integrated CAN bus termination	Switchable			Switchable via soldering jumpers	
Galvanic isolation	CAN 1 / CAN 2 1 kV, 1 sec.	CAN1 - PWR 1kV CAN 2: Fiber-Optic	CAN 1 / CAN 2 / PWR 4 kV, 1 sec.	CAN 1 / CAN 2 1 kV, 1 sec.	CAN 1 1 kV, 1 sec.
LED indicators	Transmission, Defect segment				
CAN-connectors	SUB D9	SUB D9	SUB D9	Screw-terminals	Screw-terminals
LWL connection	-	F-SMA or ST (fiber optic 50/125 µm duplex)	-	-	ST (fiber optic 50/125 µm duplex)
Baudrate	All baudrates. (Please note that transmission delay limits usage in networks above 888kpbs).				
Transmission delay	approx. 200 ns (equal to 40 meter bus length)	approx. 300 ns (equal to 60 meter bus length)	approx. 200 ns (equal to 40 meter bus length)	approx. 200 ns (equal to 40 meter bus length)	approx. 300 ns (equal to 60 meter bus length)
Operating temperature	-20 °C to +70 °C				-20 °C to +60 °C
Power supply	9-32 V DC, 1.5 W typ., via screw terminals	9-32 V DC, 3 W typ., via screw terminals	9-32 V DC, 1.5 W typ., via screw terminals	9-35 V DC, 1.5 W typ., via screw terminals	9-35 V DC, 3 W typ., via screw terminals
Certifications	CE, FCC			CE	
Housing, dimensions	Plastic DIN rail housing, approx. 22.5 x 100 x 115 mm	Plastic DIN rail housing, approx. 22.5 x 100 x 115 mm	Plastic DIN rail housing, approx. 22.5 x 100 x 115 mm	Plastic DIN rail housing, approx. 110 x 75 x 22 mm	Plastic DIN rail housing, approx. 110 x 75 x 22 mm
Order number	*1.01.0067.44010*	F-SMA plug: *1.01.0068.45010* ST plug: *1.01.0068.46010*	Standard: *1.01.0067.44400* Option 3 kV, 3 min. *1.01.0067.44300*	Standard: *1.01.0064.44000* With Low-Speed: *1.01.0064.46000*	ST plug *1.01.0063.01020*
Accessories	T bus connector, Order no. 1.04.0073.00000				

CAN-Bus-Tester 2 (CBT 2)

Easy and powerful analysis of the CAN bus physics and the CAN protocol

The CAN-Bus-Tester 2 is a universal diagnosis tool for maintenance of CAN and DeviceNet systems.

When to use

Measuring instrument for the commissioning, analysis, monitoring, troubleshooting and maintenance of CAN and DeviceNet systems.

Order information

Version	Order number
CAN-Bus-Tester CBT 2	1.04.0402.00000
Optional extensions	
CAN Monitoring Tool Add-on	1.04.0402.00011
DeviceNet Add-on	1.04.0402.00002

Typical problems which occur during the operation of CAN bus systems, such as node failures, faults in the communication or complete standstill of the plant, often have their origins in the physical bus characteristics. The CAN-Bus-Tester 2 provides an overview of the signal conditions on the bus, which helps to locate and rectify frequently occurring error causes instantly.

During the installation phase of CAN bus plants the integrated wiring test is especially useful. It is possible to check the bus wiring by using different measurement methods and thus the transfer properties are ensured. You can also perform comparing measurements directly on the running plant over its lifetime and thus prevent standstills.

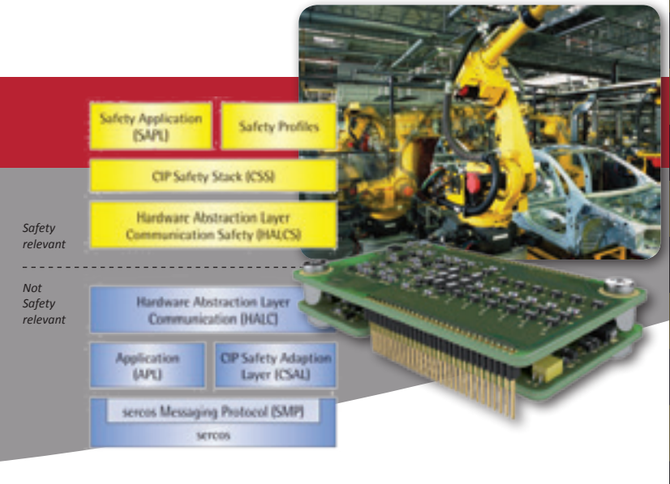
Features

- Analysis of the signal-to-noise ratio of all telegrams (level, flanks, faults)
- Integrated oscilloscope with data interpretation for telegram analysis
- Comprehensive trigger conditions for fault localization (logical and physical errors)
- Monitoring of bus status, bus load, error telegrams
- Wiring test (termination resistance, short circuits, interruptions, loop resistance, line length)
- Automatic baud rate detection
- Simple connection to CAN systems thanks to automatic baud rate detection and BusScan
- Simple operation via Windows program
- Simple generation of test protocols
- CAN monitor for transmission and reception of CAN messages (optional)

Content of delivery

- CAN-Bus-Tester (CBT 2)
- CAN bus accessories
  - 6 adapter cables (SUB-D, Open style, M12, 7/8", SAE J1939-11, SAE-J1939-13)
  - Shorting plug (SUB-D, Open style, M12, 7/8", SAE J1939-11)
  - Termination resistor (SUB-D, M12, 7/8", SAE J1939-11)
  - T- or Y-adapter (M12, 7/8", SAE J1939-11)
  - Adapter PCB for simple connection of an oscilloscope
- Power unit (100 V - 240 V / 50-60 Hz) with power cable (EU, UK, USA/Japan)
- BNC cable, USB cable
- User's manual incl. CD with USB driver and application software
- Robust. lockable case

CIP Safety Protocol Stack



For the development of customized CIP Safety target and originator devices (Master/Slave)

The CIP Safety protocol software, developed by IXXAT on behalf of SI and a consortium of companies, allows the implementation of CIP Safety targets (slaves) and CIP Safety originator (master) devices based on sercos or EtherNet/IP. The software is operating system independent (runs with and without an operating system) and can be implemented on various microcontroller systems.

When to use

Fast and easy implementation of the CIP Safety functionality into own devices according to the CIP Safety specification Edition 2.5.

Order information

Version	Order number
EtherNet/IP Target	1.02.0501.xx0xx
EtherNet/IP Originator	On request

Supplementary services

Hardware and software development services

As development partner we support you at the implementation and portation of CIP Safety, at the development of safety applications and safety hardware as well as at the certification. At this, you can benefit from our comprehensive CIP Safety know-how and our competence in the development of safety hardware and software.

The IXXAT CIP Safety protocol software enables the easy development of safe applications based on EtherNet/IP or sercos up to SIL-3 according to DIN EN 61508:2010 and is already pre-certified by TÜV Rheinland.

By using this standardized safety protocol software package development costs and investment risks can be significantly reduced. The software package consists of the protocol software in ANSI-C, a safety manual and unit tests, enabling the easy re-certification after the customer-specific implementation.

Getting started with the CIP Safety technology is simplified by the included PC demo, showing the capabilities and operation of a target and originator device.

Features

- Operating system independent - Runs with and without an operating system
- Supports CIP Safety on EtherNet/IP and Sercos
- Support of multiple CIP Safety instances
- Designed according to IEC 61508 for applications
- up to SIL-3 with support of redundant processor architectures
- Interfaces enable easy porting to different hardware and software platforms
- Simplified integration and re-certification on any target systems via included unit test suites and Safety Manual
- TÜV pre-certification and included unit tests simplify the required recertification after porting to the safe target platform significantly
- Suitable for different processor architectures and families with Little and Big Endian support, such as TMS320, ColdFire and ARM
- Also precertified by ODVA CIP Safety conformance test

Also Available

DeviceNet Slave Protocol stack

The DeviceNet Slave Protocol Software allows an easy and quick development of DeviceNet devices. All communication mechanisms defined in the DeviceNet Specification are supported, allowing the developer to concentrate entirely on the actual application.

The DeviceNet Slave Protocol software is delivered as C source code.

For further information please visit the ixxat webpage: www.ixxat.de

CIP Safety™

Anybus®

Embedded

Anybus® Connecting Devices™

Proven and trusted network interfaces installed in millions of industrial devices worldwide

Anybus® Embedded modules

For over 20 years, Anybus® embedded modules have provided ControlNet, DeviceNet and EtherNet/IP connectivity capabilities for all types of industrial devices.

Instant CIP and other network connectivity with just one development

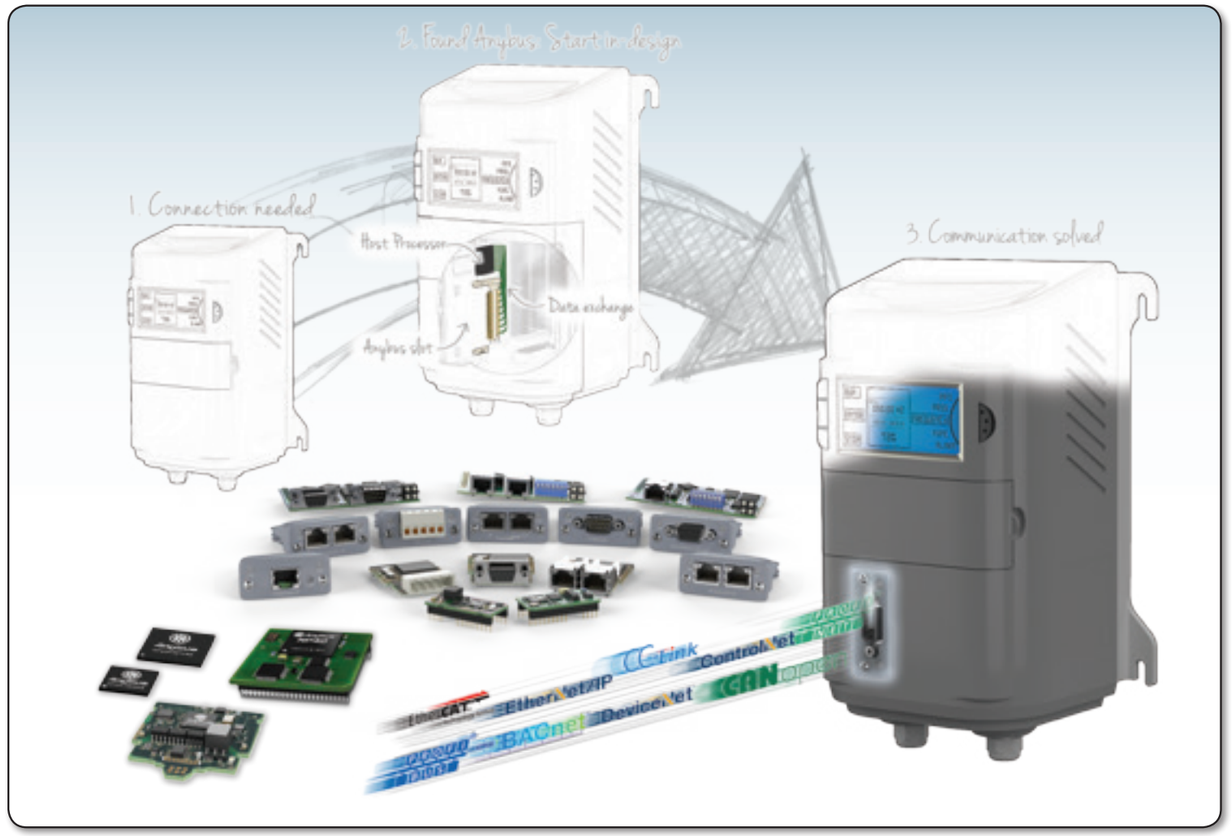
It doesn't matter if you manufacture robots, drives, weight scales, barcode scanners or any other industrial device.

Anybus modules will seamlessly integrate into your device and enable you to connect to over 20 different industrial networks.

You choose the solution that meets your demands regarding size, physical interfaces, performance, power consumption, interchangeability and so on.

With Anybus, you will get:

- Global connectivity which will open up new markets for your product.
- A faster ROI and shorter time to market.
- A future-proof solution. Avoid worrying about new networks, network upgrades, maintenance costs and conformance issues.



"Anybus users estimate that they have saved up to 70% of the development costs compared to in-house development"

One development project gives you access to all networks

During the development project, you design the Anybus module into your product.

You implement the Anybus driver in your processor which enables your product to exchange data with the Anybus module. Your product can now participate on the chosen network.

Once you have implemented the Anybus module, your device has full network interchangeability. Simply plug in another Anybus module to offer your product to any market or business segment.

Why Anybus?

"By choosing Anybus, you make sure that you have the latest industrial connectivity technology inside your product. Anybus embedded solutions are built on HMS's own network processors and combine low costs, flexibility and low power consumption with the performance you need.

Since Anybus incorporates expertise gathered from thousands of device implementations, plus original technology from the network founders, you can rest assured that you get a fast and easy design project, and that there is proven technology inside your product."

Leif Malmberg, Product Line Manager, Embedded Solutions, HMS

One CompactCom integration — access to all networks!

BACnet, Bluetooth, CANopen, CC-Link, CC-Link IE, CompoNet, ControlNet, DeviceNet, EtherCAT, EtherNet/IP, Modbus, POWERLINK, PROFIBUS, PROFINET, sercos, USB

Embedded CIP technology through Anybus CompactCom

Integrating ControlNet, DeviceNet or EtherNet/IP network connectivity into your industrial devices

The Anybus CompactCom family provides instant connectivity to any CIP or 17 other industrial networks with just one fast, one-time development.

With CompactCom you can keep the same drivers and configuration while switching between the different form factors or networks. This flexibility makes the CompactCom the most compelling alternative to extensive in-house development.

Used with automation devices such as:

- HMIs
- Drives
- Weigh scales
- I/O blocks
- Temperature controllers
- Valve manifolds
- Robot controllers
- Micro PLCs
- Bar-code scanners
- Welding controllers
- RFID applications

Anybus CompactCom overview

Quick implementation that covers many networks and flexible form factor make Anybus CompactCom a safe choice. CompactCom's unique generic interface knits together I/O, parameters, and diagnostics functionality which creates total transparency when it comes to the data exchange between the network and the device.

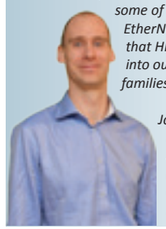
- Cost, size and performance optimized family of communication interfaces for a wide range of industrial automation devices
- Provides instant connectivity to all CIP networks as well as any other network through only one development
- Switch networks or form factors and keep the same driver and configuration
- All new and future network updates and enhancements maintained by HMS
- Short in-design with free assistance from HMS ensures a fast time to market
- Pre-certified at ODVA for full interoperability and network compliance
- 3.3 volt design with low power consumption and high data throughput
- EtherNet/IP versions available with an integrated 2-port switch
- Beacon Based DLR (Device Level Ring) and linear network topology supported on EtherNet/IP
- All modules available with or without plastic housing
- M12 connectors for IP65/67 available for DeviceNet & EtherNet/IP

EtherNet/IP™

We know EtherNet/IP

"At HMS, we take pride in providing the highest levels of network functionality and performance within our Anybus products.

Technology such as dual port EtherNet/IP with integrated switch and with support for announced and beacon-based DLR (Device level ring) are some of the latest EtherNet/IP technology that HMS integrates into our Anybus product families".



Joakim Wiberg EtherNet/IP Specialist at HMS and member of ODVA's Technical Review Board

Network specific features

1 = Network connector, 2 = Baud rate, 3 = I/O data, 4 = Other

ControlNet	**1** = BNC **2** = Fixed **3** = 256 byte IN/OUT **4** = Redundancy available. Galvanic isolated bus electronics. CIP forwarding support.
DeviceNet	**1** = 5.08 plug **2** = 125-500 kbit/s **3** = 256 byte IN/OUT **4** = Automatic baud rate support. UCMM Capable. CIP forwarding support.
EtherNet/IP	**1** = 2*RJ45 **2** = 10/100 Mbit/s full/half duplex **3** = 256 IN/OUT (30 series) 1448 IN/OUT (40 series) **4** = CIP forwarding support, 2-port switch supporting announced and beacon based DLR.

*See page 52 for mechanical and technical specifications

Module order information

Network version:	Part.No
ControlNet	AB6220
ControlNet (no housing)	AB6320
DeviceNet 30 series	AB6201
DeviceNet 30 series (no housing)	AB6301
DeviceNet 40 series	AB6601
DeviceNet 40 series (no housing)	AB6701
EtherNet/IP 2-port 30 series	AB6224
EtherNet/IP 2-port 30 series (no housing)	AB6324
EtherNet/IP 2-port 40 series	AB6604
EtherNet/IP 2-port 40 series (no housing)	AB6704

**CompactCom "Brick" solution allows for full connector flexibility. CompactCom in "Chip" format allows full integration into your PCB design. Contact HMS for more information.*

Anybus CompactCom 40-series

Next generation high speed communication with the Embedded 40-series

The Anybus CompactCom M40 for EtherNet/IP is a complete communication module which enables your products to communicate on an EtherNet/IP network. The module supports fast communication speeds, making it suitable also for high-end industrial devices.

By implementing the CompactCom concept into your product line, you will have instant access to any other industrial network by simply plugging in another Anybus module.

EtherNet/IP™

Used with automation devices such as:

- HMIs
- Servo drives
- Micro PLCs
- Weigh scales
- Bar-code scanners
- I/O blocks
- Welding controllers
- Temperature controllers
- RFID applications
- Valve manifolds

If you need fast EtherNet/IP communication

The Anybus CompactCom M40 enables fast communication between your device and EtherNet/IP. The module supports generic device profiles and comes with a dual port switch implemented in the network processor — the Anybus NP40.

Beacon-based DLR, QuickConnect Class A and CIP energy objects are other supported features.

Features

- Fast data transfer:
  - Up to 1448 bytes of process data in each direction.
  - Up to 1500 bytes of explicit messaging
- Very low latency <300µs.
- Event-based interface method enables easy access to input and output data at any time.
- Fast, event-based application hardware interfaces: 8/16-bit parallel and high speed SPI. I/O (shift register interface) is also available.
- A complete, interchangeable communication module with connectors.
- One hardware platform for all Ethernet versions. Simply download new firmware to enable communication with another network for example PROFINET or EtherCAT.
- Firmware management tool enables easy download via FTP or serial connection.
- Extended flash-based file system with two-disc access (internal and external).
- Socket interface handling the complete Ethernet frame (support for 20 socket connections).
- Solid security: Mandatory software signatures prevent unauthorized software to be downloaded to the module. Furthermore, encryption is used to prevent illicit copying.
- Profile enabling functionality (add selected profile)
- Short in-design with free assistance from HMS ensures a fast time to market.
- Pre-certified for network compliance (enables faster network certification).

CompactCom 40-series

The M40 is part of the Anybus CompactCom 40-series — communication products in chip, brick and module formats. These are all built on the Anybus NP40 processor making them especially suitable for modern and demanding industrial applications.

Innovative mounting

The Anybus module plugs into a CompactFlash™ connector which is integrated onto the host PCB. HMS offers a CompactFlash connector specifically tailored for the CompactCom module.

Best-in-class processor

The M40 is equipped with the best network processor on the market according to independent analyst firm Frost & Sullivan.

Anybus® CompactCom™ 30-series

Technical Details - CompactCom M30 Modules	
Dimensions (L • W • H)	52•50•22 mm, 2.04•1.97•0.86" 51•37•16 mm, 2.01•4.46•0.63" (modules without housing)
Protection class	IP20 (M12 connectors enable protection rating up to IP67)
RoHS Compliance	Yes
Galvanically isolated network interface	Yes
Application interfaces	Parallel Dual Port Ram (DPRAM): 8 bit data bus, 14 bit address bus Asynchronous serial interface with baud rate between 19.2 kbps - 625 kbps
Module types	Active modules: Includes parallel and serial application interfaces and full industrial network functionality Passive modules: Physical layer interface only providing transparent pass-through for serial data
Application drivers	"Standard" and "Lite" drivers available depending on host application requirements
Drive Profile support	PROFIBUS, DeviceNet, CANopen, CC-Link and EtherNet/IP
Ethernet features	Transparent socket interface, integrated 2-port switch, IT functions (FTP server, E-mail, Web server with SSI support)
Network status led outputs	Integrated on front with housing, via application interface without housing
Certifications	
UL, cUL	File number: E214107
Network conformance	Yes: Pre-certified for full fieldbus and Industrial Ethernet network conformance
CE - Declaration of Pre-Conformity	
Emission EN 61000-6-4	EN55011 Radiated emission, EN55011 Conducted emission
Immunity EN 61000-6-2	EN61000-4-2 Electrostatic discharge, EN61000-4-3 Radiated immunity, EN61000-4-4 Fast transients/burst, EN61000-4-5 Surge immunity, EN61000-4-6 Conducted immunity
Electrical Characteristics	
Power requirements	3.3 VDC, +/- 0.15 VDC
Current consumption	Less than <250 mA, (2-port 2xRJ45) <500 mA, ControlNet <1 000 mA
Environmental Characteristics	
Operating temp	-40 to 70 °C, -40-158 °F -40 to 85 °C, -40-176 °F (modules without housing) -40 to 85 °C, -40-176 °F (max storage temperature)
Humidity	5-95 % non-condensing
Starter kit	
Serial carrier board including two modules, driver and resource CD	

Anybus® CompactCom™ 40-series

Technical Details - CompactCom M40 Modules for EtherNet/IP	
Dimensions (L • W • H)	52•50•22 mm, 2.04•1.97•0.86" 51•37•16 mm, 2.01•4.46•0.63" (modules without housing)
Protection class	IP20
RoHS Compliance	Yes
Galvanically isolated network interface	Yes
Application interfaces	- 8/16-bit parallel (30 ns access) - High speed SPI, baudrate configurable up to 20 MHz - I/O (shift register interface, cyclical update time 82 µs) - UART (for backwards compatibility with 30-series, max 625kbps)
Profile support	Generic device
Ethernet features	- Transparent socket interface (40-series technology enables higher throughput) - Support of HTTP forwarding via socket interface - Integrated 2-port switch - IT functions (FTP server, E-mail client, web server with SSI support)
Internal file system size	Configurable up to 28 MB. Two discs are available: One internal (28 MB capacity), and one reserved for accessing the application file system (capacity determined by application).
LED indicator	Integrated on front (with housing), via application interface (without housing). Indicates Module Status and Network Status.
Certifications	
UL, cUL	Yes
Network conformance	Yes (Interoperability tested. plugfest approved)
CE - Declaration of Pre-Conformity	
Emission EN 61000-6-4	EN55011 Radiated emission, EN55011 Conducted emission
Immunity EN 61000-6-2	EN61000-4-2 Electrostatic discharge, EN61000-4-3 Radiated immunity, EN61000-4-4 Fast transients/burst, EN61000-4-5 Surge immunity, EN61000-4-6 Conducted immunity
Electrical Characteristics	
Power requirements	3.3 VDC, +/- 0.15 VDC
Environmental Characteristics	
Operating temp	-40 to 70 °C, -40-158 °F -40 to 85 °C, -40-176 °F (modules without housing)
Humidity	5-95 % non-condensing

Anybus® Communicator™

Communicator RTU, Communicator DF1, Communicator RS-232/485		
Protocol	Modbus RTU Master, DF1, ASCII, Configurable protocols	
Max stations	31 (with RS485/422)	
Serial baud rate	1,2-57,6 kbit/s	
Physical standards	RS232/422/485	
Communicator CAN		
Protocol	Configurable CAN 1.0, 2.0A and 2.0B based protocols	
Max stations	31 (with RS485/422)	
Baud rate	20 kbit/s - 1 Mbit/s	
Physical standards	RS232/422/485	
Technical Details		**Standard**
Weight	150 g, 0,33 lb	
Dimensions (L•W•H)	120•75•27 mm, 4,72•2,95•1,06"	
Protection class	IP20, NEMA rating 1	
Enclosure material	PC ABS, UL 94	
Installation position	Any	
Mounting	DIN rail (35•7,5/15)	EN 50022
Certifications		
UL	File number: E203225	UL 508 Ind. Cont. Eq.
Hazardous Locations	CLASS 1, DIVISION 2, GROUPS A, B, C AND D, T4	ISA 12.12.01
CE	2004/108/EC	EN 61000-6-4 EN 61000-6-2
Electrical Characteristics		
Power	24 VDC +/- 10 %	
Current consumption	Max 300 mA, Typical 100 mA	
Hardware Characteristics		
Reverse voltage protection	Yes	
Short circuit protection	Yes	
Galvanic isolation on subnetwork	Yes	EN 60950-1
Environmental Characteristics RTU, DF1, RS-232/485		
Operating temp	0 to 55 °C, 32 to 131 °F	
Storage temp	-40 to 85 °C, -40 to 185 °F	
Relative Humidity	0-95 % non condensing	
Installation altitude	Up to 2 000 m	
Environmental Characteristics Communicator CAN		
Operating temp	-25 to 55 °C, -13 to 131 °F	
Storage temp	-40 to 85 °C, -40 to 185 °F	
Relative Humidity	5-95 % non condensing	
Installation altitude	Up to 2 000 m	

Anybus® X-gateway™

X-gateway Technical Details		Standard
Weight	500 g, 1,100 lb	
Dimensions (L•W•H)	126•110•42 mm, 4,96•4,33•1,65"	
Protection class	IP20, NEMA rating 1	
Enclosure material	Aluminium	
Installation position	Any	
Mounting	DIN rail (35•7,5/15)	EN 50022
X-gateway Electrical Characteristics		
Power	24 VDC +/- 10 %	
Current consumption	Max 300 mA, Typical 200 mA	
X-gateway Environmental Characteristics		
Operating temp	0 to 65 °C, 32 to 149 °F (for all other networks)	IEC 68-2-1, IEC 68-2-2
Storage temp	-40 to 85 °C, -40 to 185 °F	IEC 68-2-1, IEC 68-2-2
Relative Humidity	5-95 % non condensing	IEC 68-2-30
Installation altitude	Up to 2 000 m	

X-gateway CANopen Technical Details		Standard
Weight	150 g, 0,33 lb	
Dimensions (L•W•H)	120•75•27 mm, 4,72•2,95•1,06"	
Protection class	IP20, NEMA rating 1	
Enclosure material	PC ABS, UL 94	
Installation position	Any	
Mounting	DIN rail (35•7,5/15)	EN 50022
X-gateway CANopen Electrical Characteristics		
Power	24 VDC +/- 10 %	
Current consumption	Max 300 mA, Typical 200 mA	
X-gateway CANopen Environmental Characteristics		
Operating temp	-25 to 55 °C, -13 to 131 °F	IEC 60068-2-1 IEC 60068-2-2
Storage temp	-40 to 85 °C, -40 to 185 °F	IEC 60068-2-1 IEC 60068-2-2
Relative Humidity	5-95 % non condensing	IEC 60068-2-30
Installation altitude	Up to 2 000 m	

X-gateway Modbus TCP Client/Master Technical Details		Standard
Weight	160 g, 0,35 lb	
Dimensions (L•W•H)	110•35•101 mm, 4,33•1,38•3,98"	
Protection class	IP20, NEMA rating 1	
Enclosure material	PC ABS, UL 94 VO	
Installation position	Horizontal	
Mounting	DIN rail (35•7,5/15) or Wall Mount	EN 50022
X-gateway Modbus TCP Electrical Characteristics		
Power	24 VDC +/- 10 %	
Current consumption	Max 300 mA, Typical 200 mA	
X-gateway Modbus TCP Environmental Characteristics		
Operating temp	-25 to 55 °C, -13 to 131 °F	IEC 60068-2-1 IEC 60068-2-2
Storage temp	-40 to 85 °C, -40 to 185 °F	IEC 60068-2-1 IEC 60068-2-2
Relative Humidity	5-95 % non condensing	IEC 60068-2-30
Installation altitude	Up to 2 000 m	

Certifications		
UL	File number: E203225	UL 508 Ind. Cont. Eq.
HazLoc	CLASS 1, DIVISION 2, GROUPS A, B, C AND D, T4	ANSI/ISA 12.12.01-2000
ATEX	Zone 2, Cat 2	EN60079-15 EN60079-11
CE	2004/108/EC	EN61000-6-4 EN61000-6-2

Case Study: Protocol conversion

Rockwell Automation and HMS provide intelligent solutions for the Guangzhou Metro Line 5 BAS system

Solution: Device connectivity using a custom serial protocol
Country: China
Company: Guangzhou Metro
Summary: Anybus Communicator enables communication between different devices in Guangzhou Metro's surveillance system and the ControlNet network.

System integration made easy for Chinese subway line

Guangzhou Metro Line in China connected various monitoring equipment to ControlNet using solutions from Rockwell Automation and the Anybus Communicator from HMS.

The Guangzhou Metro Line 5 spans 40 kilometers east to west through Guangzhou City. The line includes 24 stations and has a capacity of transporting a whopping 50 million passengers per day.

Like all modern subway lines, the Guangzhou Metro Line 5 has a comprehensive monitoring system overlooking ventilation, air conditioning, water supply, drainage, elevators etc.

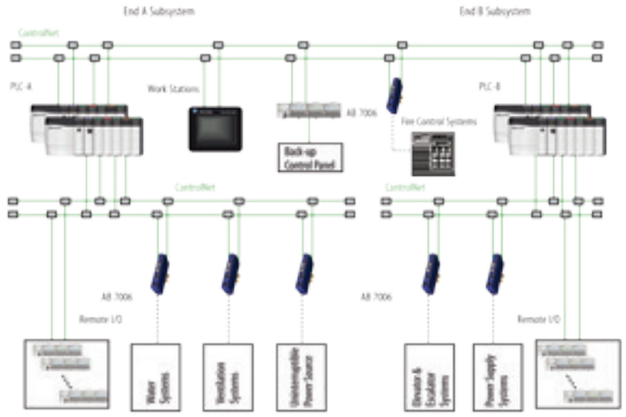
The Challenge

The Metro Line system has numerous points with large amounts of data. The monitoring system has a total of about 210,000 I/O points. The entire project was forecasted to contain 280,000 points, of which 70,000 points were allocated to the BAS system. Consequently, system integration required a great deal of work and deadlines were tight – 24 stations were to be simultaneously opened. Indeed, never before in the country had so many stations been opened at one time.

The Solution

The Rockwell Automation system is widely used in the rail transport field. The central segment of the Metro Line 5 BAS system uses ControlLogix Redundancy Controllers from the Rockwell Automation Integrated Architecture platform. Together with the Anybus Communicator ControlNet gateway, devices with a serial RS-485 interface with a custom protocol were easily integrated into the system.

The BAS system was implemented one month before Guangzhou Metro Line 5 was successfully commissioned. The system integration was carried out by Beijing-based HollySys Automation Technologies.



BAS Metro Line 5 System Overview

"The Communicator required no programming and was configured to use a uniform method to access subsystems; thereby, saving us a great deal of time in the project implementation stage."

Zhao Feng, HollySys' project manager of the Guangzhou Metro Line 5 project.

Case Study: Network to network

Network to network and PLC system connectivity for C.I.A Automation and Robotics

Solution: Network to Network connectivity
Country: Italy
Company: C.I.A. Automation and Robotics
Summary: Anybus X-gateways provide robots with connectivity to several industrial networks such as for example PROFIBUS and DeviceNet.

Automation: a must to be able to compete on the global market

C.I.A. Automation and Robotics has extensive experience in the field of advanced automation, proposed as a strategic tool to increase the competitiveness of Italian companies in the world. It offers advanced technologies such as laser scanners, stereoscopic vision equipment and systems that can reproduce a die and copy it directly, automatically recomposing the scanning scattergrams, a very differentiating solution.

The Challenge

"We have produced automation systems, testing benches and machinery managed by PLCs and Scada systems for the foodstuffs, chemical, glass, plastics, metalworking, metallurgical and automobile industries", explained Mr Angelo Galimberti, the sole director of C.I.A. Automation and Robotics. "As well as many other applications, such as robotised stations for servo-mechanical machinery, palletisation lines, assembly lines and processing lines such as for handling, cutting, hot and cold pressing, welding, tacking, induction, brazing, deburring, etc." As most of C.I.A Automation and Robotics applications are specific, they have to interface different kinds of devices in their automatic systems that use different communication protocols.

The Solution

"We have produced various equipment with PROFIBUS master PLCs and DeviceNet slaves, or with DeviceNet master PLCs and PROFIBUS slaves, and so on", said Galimberti. "HMS products have enabled us to resolve and simplify a number of these applications. The protocols we use the most are PROFIBUS and DeviceNet, which cover almost 90% of the cases we deal with involving robots and PLCs."

The Result

He added that C.I.A. was satisfied with the performance of HMS products and that no major problems were encountered. "I believe that we will continue to find space for HMS products in our future applications, whenever we need to interface system parts that use different communication protocols", concluded the director of C.I.A. Automation & Robotics.

"This need for flexibility in diverse design conditions led us to try HMS products, which we appreciated immediately because they are particularly comprehensive and can be used to interface different kinds of machines, even pre-existing machinery."

Angelo Galimberti, Director of C.I.A. Automation and Robotics.

Case Study: Remote management

Netbiter® monitors compressors in order to reduce downtime and optimize gas consumption

Solution:	Remote monitoring and control
Country:	USA
Company:	Bauer Compressors
Summary:	Netbiter® monitors compressors in order to reduce downtime and optimize gas consumption.

Remote management helps improve customer care and service

Bauer Compressors is a leading manufacturer of compressor systems that offer commercial and industrial solutions for oxygen, natural gas (CNG), and some noble gases. Having a turnover (not consolidated) of over 140 million Euro worldwide, the BAUER KOMPRESSOREN Group has become a global player in the high pressure sector. A world market share of over 70% for breathing air applications underpins BAUER's technological leadership.

The Challenge

Bauer recently launched a new product line that includes remote monitoring capability – a feature that is new to the compressor market. In selecting the remote monitoring vendor, Bauer wanted an easy-to-implement solution for the site installations, and a solution that provides easy central management of all the monitored sites. "We wanted to implement remote monitoring on our compressors in order to reduce downtime and optimize gas consumption", explains Tommy Michaelides, Bauer Compressors Inc., the US subsidiary.

The Solution

Bauer chose the Netbiter Solution, consisting of GSM-enabled remote devices and the Netbiter Online Management Portal. This industrial grade remote management solution enables access to mobile and stationary installations for applications such as monitoring, control, alarm management, data logging, reporting, location tracking and service call. It is primarily made for remote monitoring, but control is also possible: for instance PLC parameters can be changed.

"With this web interface, operators can analyze the problem thanks to a PC and a smart phone. Some are using an iPhone, and it is really appreciated by our customers", explains Tommy Michaelides. "This is a very modular solution we can duplicate easily on any other plant, whatever the compressor or the PLC. New development is minimized and our objective is to offer this option more on our different ranges of products".

Bauer studied the offers from several vendors but the choice was made for HMS: "it was less expensive and it appeared to be more proven. Most of all,

"This is a very modular solution we can duplicate easily on any other plant, whatever the compressor or the PLC."

Tommy Michaelides

as it is a long term project for Bauer, it appears to us to be the most promising offer: the web system is attractive and it is open to all PLCs and any kind of fieldbus", concludes Tommy Michaelides.

The Result

"This added-value option is very new in our industry. Return on investment for our customers should be very short. Firstly, it simplifies maintenance operations. Second, it also enables quicker intervention when a problem occurs. Thus, downtimes are reduced and gas consumption can also be optimized. That's very valuable as gas is expensive".

HMS Connecting Devices™

Work with the world's number one choice for industrial communication

Facts about HMS

- Operations in 10 countries: Sweden, Germany, USA, Japan, Denmark, China, Italy, France, UK and India.
- Customers in more than 50 countries.
- Head office in Halmstad, Sweden.
- Founded in 1988.
- More than 350 employees.
- Listed on NASDAQ-OMX Nordic Exchange in Stockholm.

Network connectivity expertise at your service

With more than 2 million communication modules installed globally, HMS Industrial Networks is indisputably the world's number one provider of industrial connectivity solutions.

Customers include most major industrial automation companies such as Rockwell Automation, Siemens, Mitsubishi, Yaskawa, Schneider Electric, Toshiba, Panasonic, ABB and Hitachi.

Anybus® MILLIONS OF DEVICES CAN'T BE WRONG

Focus on what you do best

By partnering with HMS, you get access to the knowledge of some of the world's leading experts on industrial connectivity — experts who are with you all the way from the design project and throughout the product life cycle.

With HMS as your communication partner, you will not have to worry about network upgrades, new technologies or conformance testing. HMS handles all connectivity issues, so you can focus on your core business.

"Partnership with HMS is for the long-term

We work closely with our customers to offer expertise and know-how. We help you broaden your market and stay up-to-date when it comes to network connectivity. Indeed, many of our customers regard HMS as their internal development department for industrial communication.

Get in touch with us, and we'll tell you more about how to get connected."

Staffan Dahlström
Chief Executive Officer, HMS

Technical services

Technical services from HMS help projects move forward smoothly and successfully, from idea to fully implemented and deployed solution.

Startup Assistance

"Startup Assistance" is one of our Application services aimed at speeding up the process of getting started with our products. It means that an expert assists you during the set-up, configuration and validation of your HMS product. This can either be done through a Live Virtual Session over the Internet or through a meeting at HMS or customer premises. This applies to the Netbiter and Anybus Gateway product ranges.

Field trial Assistance

"Field trial Assistance" is one of our Application Services offering technical guidance during a field trial at site. It means that an expert assists to guide during the installation and test of your HMS product in a real test application. This applies for the Netbiter and Anybus Gateways product ranges.

Product trainings

We offer three methods of training (listed below) that apply to the Netbiter and Anybus Gateway product ranges.

Classroom training

We offer our customers a combination of theoretical and hands-on product sessions with real-world examples. The attendants learn how to set up, configure and use the solution, always supervised by a product expert.

Live Virtual Class

Online instructor-led trainings delivered via Web conferencing and audio. Just like a traditional classroom course plus live interactions like chat and desktop sharing.

Training on demand

These self-study online courses include webinar recordings or high quality video of both theory and visualization of hands-on labs, providing you with greater flexibility to learn at your own pace.

Always Free Tech Support

At HMS, technical support for standard products is FREE of charge and available from all HMS offices and distributors around the world. HMS has CIP specialized development engineers, global technical support teams, and CIP-trained sales, all dedicated to increasing your automation performance, raising productivity, decreasing product downtime and reducing your costs and efforts.

Rockwell Automation Knowledge Base Program

In addition to HMS online technical support, HMS's products can also be found via Rockwell's own Knowledge Base Support Program. For more information visit: https://rockwellautomation.custhelp.com/

Tech support contacts

Go in to our support section on www.anybus.com and use our web-based "Request support" feature. If you want to speak personally to a support specialist please use the numbers below.

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HMS - France
Tel: +33 (0)368 368 033

HMS - Germany
Tel: +49 721 989777-301

HMS - India
Tel: +91 20 40111201

HMS - Italy
Tel : +39 039 59662 27

HMS - Japan
Tel: +81 (0)45 478 5340

HMS - Sweden (HQ) and HMS - UK
Tel : +46 (0)35 17 29 20

HMS - United States
Tel: +1 312 829 0601

HMS provides a 3-year product guarantee on all Anybus and Netbiter gateways

The first line of support

The HMS Academy is an umbrella for all HMS training and e-learning activities. Through our Academy trainings, videos and other materials, you can learn more about industrial communication and get a better insight into HMS products and solutions.

Webinars

Spend an hour with an industrial communication specialist to learn how to connect different fieldbus, industrial Ethernet and wireless networks. HMS webinars are held free of charge via Webex in various languages and at different locations and time-zones.

How-to application notes

Step-by-step instructions on how to carry out specific actions using the different Anybus products.

How-to videos

Screen recordings of how to configure Anybus and Netbiter gateways. Follow these to get up and running in a few minutes.

Hands-on training

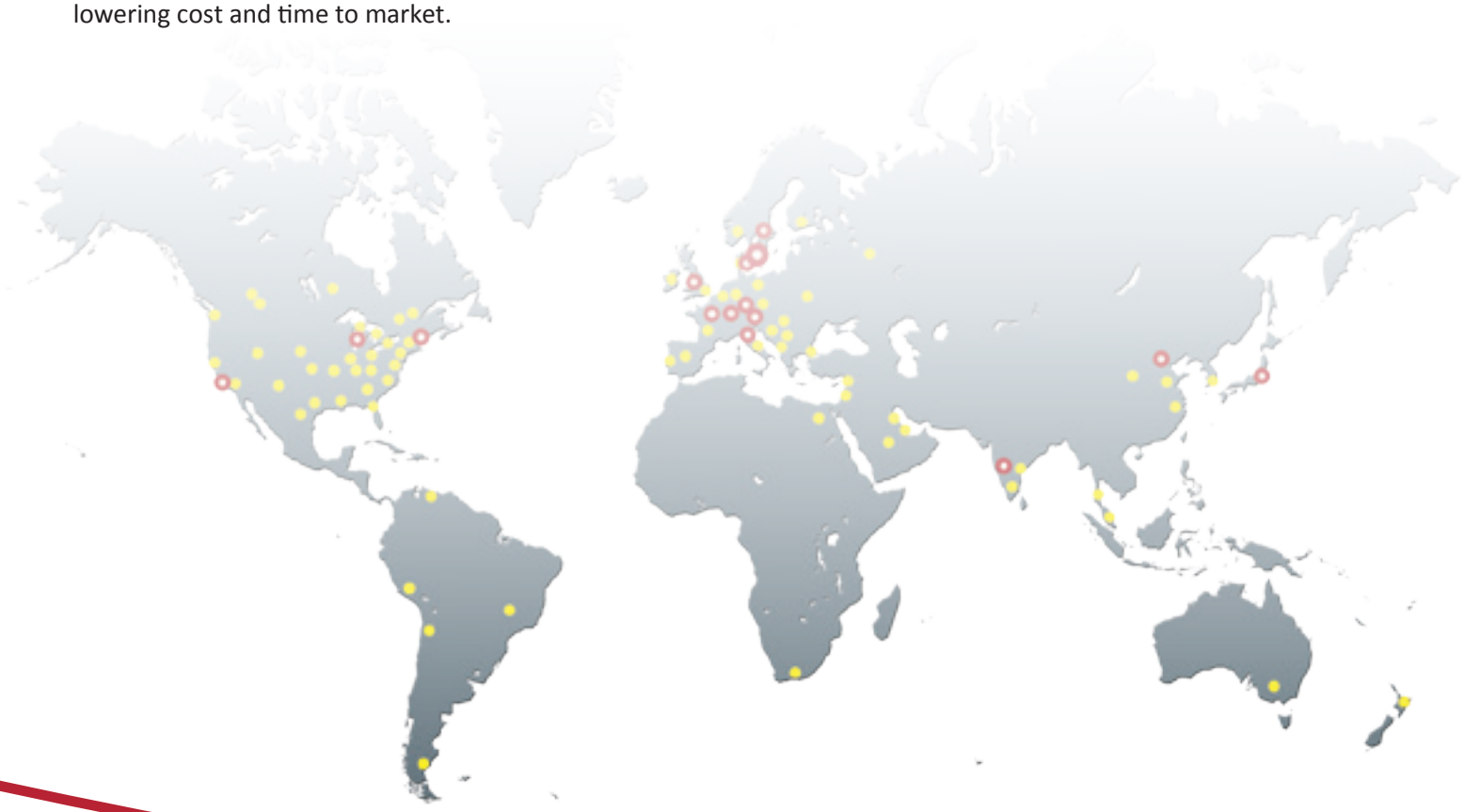
Get hands-on training on HMS products and technologies. The trainings are run at an HMS office or at your location if you prefer!

Stay connected!

We regularly send out information specific to an HMS product line via both e-mail and social media. Sign up on our websites and stay informed about the latest HMS product developments, industry news, case studies, tips and tricks and much more.

HMS Industrial Networks

Through the Anybus®, IXXAT® and Netbiter® brands and products, HMS Industrial Networks provides reliable solutions for industrial communication and remote management. HMS's knowledgeable staff along with distributors and partners in over 50 countries worldwide, are there to help you and your business increase productivity and performance while lowering cost and time to market.



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